

**Working
Paper
No 2**

Contribution of the Unorganised sector to GDP Report of the Sub Committee of a NCEUS Task Force



**National Commission for Enterprises in the
Unorganised Sector**

**Jawahar Vyapar Bhawan, 1, Tolstoy Marg,
New Delhi - 110 001**

www.nceus.gov.in

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Previous Reports of the National Commission for Enterprises in the Unorganised Sector

1. Social Security for Unorganised Workers, May 2006
2. National Policy on Urban Street Vendors, May 2006
3. Comprehensive Legislation for Minimum Conditions of Work and Social Security for Unorganised Workers, July 2007
4. Conditions of Work and Promotion of Livelihood in the Unorganised Sector, August 2007
5. Reports on Financing of Enterprises in the Unorganised Sector & Creation of a National Fund for the Unorganised Sector (NAFUS), November 2007

Previous Working Paper of the National Commission for Enterprises in the Unorganised Sector

1. Measures of Labour Force Participation and Utilization, January 2008

Preface

National Commission for Enterprises in the Unorganised Sector (NCEUS) set up by the Government of India is mandated, inter-alia, to (i) review the status of unorganised/informal sector in India including the nature of enterprises, their size, spread, scope and magnitude of employment, and (ii) review the existing arrangements for estimating employment and unemployment in the informal sector. The Commission, however, noted that the definitions being used by various agencies to identify the unorganised/informal sector are not uniform and it varied in certain cases even among different sub-sectors of the economy. The Commission, therefore, constituted a Task Force to examine definitional and statistical issues relating to the sector. The Task Force after considerable deliberations formulated a set of harmonized definitions of the sector and informal employment. It also estimated the un-organised/informal sector workers as comprising about 86% of work force in the Indian economy in 2004-2005 and informal employment both in the organised and unorganised sector as 92%.

A review of the existing methods of measuring the contribution of the unorganised/informal sector to the GDP by the Task Force revealed that the estimates are worked out as a residual rather than by using any direct method of estimation. It is also noted that the estimates of the contribution of the unorganised sector being worked out by the Central Statistical Organization do not relate to the unorganised/informal sector as defined by the NCEUS. It was thus found necessary to have measurements of the contribution of the unorganised/ informal sector as defined by the NCEUS to examine the problems and challenges being faced by the sector. A Sub-Committee of the Task Force headed by Dr. K.P. Kannan, Member, NCEUS, was therefore entrusted with the task of reviewing the existing methods in the estimation of national income originating from the unorganised sector and for evolving a proper methodology for direct estimation.

The Sub-Committee reviewed all the existing literature on the subject and examined the feasibility of obtaining direct estimates of GDP contribution of unorganised/informal sector by utilizing the data sets presently available. The Sub-Group found that the statistical system of the country, particularly in relation to the unorganised sector, need to be strengthened considerably for deriving reliable direct estimates of the contribution of unorganised sector to GDP on a continuing basis. It also evolved a methodology for apportioning the GDP estimates of each tabulation category into organised and unorganised sectors by using employment estimates based on quinquennial Employment-Unemployment surveys and Gross Value Added (GVA) per worker estimated from surveys of unorganised manufacturing and services sectors. The report of the Sub-Committee is being issued as a working paper in order to elicit comments and to further develop the ideas presented in the paper.

Arjun Sengupta
Chairman
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5 March, 2008

Abstract

The task of the Sub-committee was to review the existing methodologies for estimating the contribution of unorganised/informal sector to GDP and suggest measures to facilitate direct estimation. The Group reviewed the 'Labour input method' contained in an OECD publication titled 'Measuring the Non-Observed Economy - A Handbook' and the 'Method of Apportioning' proposed by Shri Ramesh Kolli and Suvendu Hazra in a paper presented in the Eighth meeting of the 'Delhi Group'. Given the existing data systems in the country, it is not found feasible to use the 'Labour Input Method' unless substantial improvements are made in the statistical system of the country. Though, it would be necessary to introduce such improvements in the statistical system, realistic estimates need to be generated in the interim-period. The Sub-committee, thus, developed an alternative method of apportioning by using estimates of labour inputs and productivity differentials of both the organised and unorganised sectors. According to the estimates worked out by the Sub-committee by using the modified apportioning method, about 50 percent of the GDP was contributed by the unorganised/informal sector in 2004-05.

Acknowledgements

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I also gratefully acknowledge the excellent assistance provided by Shri Ajaya Kumar Naik in undertaking tedious tabulations using unit level data sets and formatting the report. We also thank all the officers and staff of the Commission for providing the necessary logistic support and facilities.

March 2008

K.P. Kannan
Sub-Committee Chairman
Task Force on Definitional & Statistical Issues
Relating to the Unorganised Sector
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Abbreviations

ASE	:	Annual Survey of Enterprises
ASI	:	Annual Survey of Industries
ASNMI	:	Annual survey of Non-Manufacturing Industries
CFC	:	Consumption of Fixed Capital
CPI-AL	:	Consumer Price Index for Agricultural Labours
CPI-IW	:	Consumer Price Index for Industrial Workers
CSO	:	Central Statistical Organisation
DGET	:	Directorate General of Employment and Training
EUS	:	Employment and Unemployment Survey
EWS	:	Economy-wide Survey
GDP	:	Gross Domestic Product
GTI	:	Gross Trading Index
GVA	:	Gross Value Added
GVO	:	Gross Value of Output
IIP	:	Index of Industrial Production
ISP	:	Index of Service Production
NASSCOM	:	National Association of Software and Service Companies
NCEUS	:	National Commission for Enterprises in the Unorganised Sector
NDP	:	Net Domestic Product
NIC	:	National Industrial Classification
NSC	:	National Statistical Commission
NSSO	:	National Sample Survey Organisation
OAE	:	Own Account Enterprises
OECD	:	Organisation for Economic Co-operation and Development
PC	:	Population Census
PCOs	:	public call office booths
RGI	:	Registrar General of India
SSI	:	Small Scale Industries
VAPW	:	value added per worker
WF	:	workforce
WG	:	Working Group

Contribution of the Unorganised sector to GDP Report of the Sub Committee of a NCEUS Task Force

Introduction

1.1 The economic value of goods and services produced in the Indian economy is estimated in terms of Gross Domestic Product (GDP) by using a combination of production, income and expenditure methods. The estimation of contribution of any sub-sector of the economy, like the un-organised sector, to GDP also needs to use the same methodology and procedures for maintaining comparability and complementarity. It also has to be within the overall framework being used for the compilation of national accounts statistics in the country.

1.2 The Sub-committee of the Task Force constituted by the NCEUS to review the definitional and statistical issues reviewed various methods available for the estimation of unorganised sector GDP keeping the above aspects in view. The composition of the Sub-committee is at Appendix-1. It reviewed the methodology suggested by the OECD, the estimation procedures followed by the Central Statistical Organisation (CSO) and a paper presented by Shri Ramesh Kolli and Shri Suwendu Hazra in the Eighth meeting of the Delhi Group on Informal sector held in February, 2005. Based on the review and the details provided by the CSO, the Sub-committee recommended a modified apportioning method for the estimation of the contribution of the unorganised sector to GDP. A number of recommendations are also made to strengthen the statistical system of the country in order to

integrate the estimation of unorganised sector GDP with the National Accounts Statistics.

2 Labour Input Method

2.1 In the book titled 'Measuring the Non-observed Economy – A Handbook' by OECD (2002), the Labour Input Method has been suggested as a feasible method for estimating un-observed economy including the contribution of informal sector to GDP. In this method, the estimated labour input in each industry group is multiplied by the corresponding Gross Value Added (GVA) per unit of labour. The use of this methodology for the estimation of GDP depends on the availability of reliable data sets on sector-wise employment and GVA per unit of labour input for all sectors of the economy at regular intervals of time.

2.2 In the context of India, the estimates of labour input can be worked out with reasonable level of accuracy by using the data sets of NSS Employment –Unemployment Surveys and projected population estimates. The estimation of gross value added per worker is, however, a difficult task due to non-coverage of all sectors of the economy in the enterprise surveys being conducted in India. For example, there has not been any enterprise survey in the unorganised sector for the estimation of gross value added per worker in the agricultural, mining and electricity, gas & water supply sectors during the last two decades. In the case of other sectors, the estimates

are not available for all the industry groups for any single year, as enterprise surveys on different subjects are conducted on different years. The coverage of these surveys in different rounds are also always not the same. There are also self-employed persons like maid servants, home tutors, head load workers, etc who may not be captured in any enterprise survey. The estimates of gross value added per worker obtained from the surveys are also considered to be under estimates due to various reasons including under reporting of receipts. The statistical system in India at present is thus not attuned to produce statistics at a level of reliability equivalent to the organised sector required for the estimation of unorganised sector GDP. However adhoc attempts have been made in the past to capture the relevant data sets.

3 CSO Methodology

3.1 The Central Statistical Organization (CSO) compiles the estimates of GDP for organized and unorganized sectors (as used in NAS) separately at the level of broad tabulation categories. The organized sector is, however, not uniformly defined and there are variations in coverage across various industry groups. By and large, all Government and Public Sector Enterprises are in the organized sector. In some specific industry groups, the private corporate sector is also included in the organized sector. In some other industries, the entire activity is in the organised sector. The residual activities for which no regular statistical reporting systems are available are categorized as unorganized sector for the purpose of national accounts. The GDP estimates of unorganized sector in each industry group is initially prepared for a bench mark year by using labour input method. For the subsequent years, the benchmark year estimates are extrapolated with appropriate physical indicators and the relevant price indices. A note containing the methodology being followed by the CSO is at Appendix 2.

4 Method of Apportioning

4.1 Shri Ramesh Kolli and Shri Suvendu Hazra of the CSO estimated the share of informal sector (as distinguished from unorganised sector) in the Net Domestic Product (NDP) by apportioning the estimated unorganized sector NDP as put out by the CSO in their NAS estimates by using a method of apportioning. The definitions and assumptions used in apportioning are as under:

- i) All own account enterprises and among the enterprises with at least one hired worker or those

having five or less workers are considered as informal sector enterprises;

- ii) Among the enterprises identified above, the following were excluded:

- a) registered under the Companies Act;
- b) employing processes requiring high degree of technical know how;
- c) franchises of formal sector units;
- d) not covered under the production boundary; and
- e) non- profit institutions;

- iii) The following assumptions were also in respect of specific industries groups

- (a) In the case of 'agriculture, forestry and fishing', 'mining', electricity, gas and water supply' and 'construction' sectors, the entire NDP of unorganised sector is assumed to be in the informal sector.
- (b) The GDP shares of informal sector enterprises as revealed by the NSS 56th Round Survey on Unorganised manufacturing were considered to remain and unchanged over the years.
- (c) In the case of 'trade, hotels and restaurants' sector, the estimates of GDP shares of informal sector as revealed by NSS 55th Round Survey on Informal Sector were assumed to be valid for subsequent years.
- (d) For 'transport and communication' sector, the GDP shares as estimated from NSS 57th Round survey, on Unorganised Services, after netting out NPIHs and establishments out of production boundary, were considered to be unchanged. The same assumption is followed in the case of 'real estate, financial, ownership of dwellings and business services'. In the case of financial services, however the 'private money lenders', etc. which should have been considered as informal sector, were not covered by any survey and as such not taken in the Indian System of National Accounting.

By using the above methodology Kolli and Hazra estimated the contribution of informal sector to net domestic product (NDP) as 47.7% for the year 2001-02, though the conventional estimates of the unorganised sector was 58.5 per cent. The sector wise details are given in Table 1.

Table 1 Share of Informal sector in NDP : 2001-02

(percent)

Industry Group	Informal	Others	Unorganised	Organised	Total
1. Agriculture, forestry and fishing	25.5		25.5	0.9	26.4
2. Mining and quarrying	0.2		0.2	1.8	2.0
3. Manufacturing	1.6	3.4	5.0	8.4	13.4
4. Electricity, gas and water supply	0.1		0.1	1.0	1.0
5. Construction	3.9		3.9	2.5	6.4
6. Trade, Hotels, restaurants	9.3	2.5	11.9	3.8	15.6
7. Transport and communication	3.3	0.6	3.9	2.8	6.7
8. Real estate, financial services and ownership of dwellings	2.6	2.9	5.4	7.6	13.0
9. Community, social and personal Services	1.3	1.3	2.6	12.8	15.4
10. Total	47.7	10.7	58.5	41.5	100.0

5. Modified Method of Apportioning – Sub-Committee approach

5.1 In this method, both the employment shares and productivity differences as revealed by various surveys are used for apportioning of GDP estimates relating to each tabulation category as computed by the Central Statistical Organisation (CSO). Apportioning is, however, not confined to GDP estimates of un-organised sector as in the case of original method of apportioning. Instead, in some of the sectors like services, the entire GDP estimate is apportioned. The labour input in each of the compilation categories as followed in the National Accounts and classified as per the unorganised sector and informal sector definitions were computed from the NSS 55th and 61st Round surveys of Employment and Unemployment after making appropriate adjustment for census population estimates/projections. These estimates were used for devising appropriate ratios for apportioning.

5.2 The organised sector for the purpose of compilation of national accounts in the case of agriculture consisted of all government and public sector undertakings and plantation crops of tea, coffee and rubber in the private sector. In the absence of any data sets on the contribution of corporate sector to agriculture except in the case of plantation, it is assumed that the entire GDP outside the organised sector of agriculture can be approximated as the contribution of Informal sector as defined by the Task Force¹.

5.3 In the manufacturing sector, all the registered factories covered under the Factories Act, 1948 constituted the organised sector. The unorganised sector as per national accounts, therefore, included establishments in the corporate and Government sectors as well as those employing more than nine workers but not registered under the Factories Act, 1948. Thus the informal sector as per the Task Force definition was a sub-set of the unorganised sector as identified in the national

¹ The Task Force on Definitional and Statistical Issues Relating to the Unorganized Sector defined the unorganized or informal sector as follows : "The unorganized sector consists of all unincorporated private enterprises owned by individuals or households engaged in the sale and production of goods and services operated on a proprietary or partnership basis and with less than ten total workers".

It should be noted that this definition, accepted by the NCEUS, along with the definition of informal employment i.e. Unorganized workers consist of those working in the unorganized sector or households, excluding regular workers with social security benefits provided by the employers and the workers in the formal sector without any employment and social security benefits provided by the employers formed the basis for estimating the unorganized or informal sector in its reports. The NCEUS does not distinguish the unorganized from the informal and these terms are used interchangeably.

accounts. Therefore, apportioning was to be done only for the unorganised component of the GDP. The methodology for apportioning consisted of the following steps.

- (i) By using the data sets of Employment-Unemployment surveys, work force in the manufacturing sector was divided between ASI and Non-ASI sectors. The enterprise characteristics like number of workers employed, use of electricity, were used for making such a division.
- (ii) The work force engaged in the Non-ASI Sector was further divided into those belonging to informal sector and outside as per Task Force definition. Again the enterprise characteristics like type of enterprise and employment size were used for the classification.
- (iii) The NSS 56th Round Survey on Un-organised Manufacturing Enterprises included all the establishments not covered under the Annual Survey of Industries. The establishments surveyed were classified into those belonging to the informal sector and others by using the criteria of enterprise type and number of workers. The average gross value added per worker has been then estimated for each group separately in each tabulation category.
- (iv) The employment estimates of informal sector and others in each tabulation category as obtained from NSS 55th and 61st Round surveys were then multiplied with the corresponding gross value added per worker estimates obtained from NSS 56th Round to get notional estimates of GVA in each group.
- (v) The ratio for apportioning the estimated unorganised sector GDP is then computed by dividing the notional gross value added estimate of informal sector with the total gross value added of unorganised sector for each tabulation category.
- (vi) The ratios thus worked out were applied to GDP estimates of unorganised sector for each tabulation category to estimate the contribution of informal sector.

5.4 In the case of construction, trade, banking, financial intermediation and insurance, the organised sector in the compilation of national accounts include all public and private corporate sector enterprises. Therefore, apportioning has to be done only for unorganised sector GDP in these groups of industries also as in the case of

manufacturing sector. The methodology for apportioning thus involved the following steps.

- (i) The work force employed in the non-public and non-corporate sector in each of the tabulation categories of the above industry groups was divided into those belonging to informal sector and others by using the data on enterprise type and number of workers.
- (ii) The proprietary and partnership establishments in the above categories of industries were surveyed in the NSS 55th Round Informal Sector Survey. The data sets of this survey were used for estimating the average value added per worker separately for informal sector establishments and others in each tabulation category.
- (iii) The employment estimates of informal sector and others in each compilation category as obtained from NSS 55th and 61st Round surveys were then multiplied with the corresponding gross value added per worker estimates obtained from NSS 55th Round Informal Sector Survey to get notional estimates of GVA in each sector.
- (iv) The rest of the steps are the same as those at steps (v) and (vi) under 5.3.

5.5 In the services sector, there were variations in the coverage of organised sector in the compilation of national accounts. While in the case of hotels and restaurants, the establishments in the public, corporate and co-operative sectors were included in the organised sector, in the case of health services only the public sector medical facilities were earlier treated as organised. Corporate sector health facilities have also been included in the organised sector in the latest revision of National Accounts. In the case of education all recognized educational institutions without any consideration of ownership type and number of workers were included in the organised sector. In Public Administration and Defence and Railways, the entire sector has been regarded as organised. The public sector was, however, invariably included in the organised sector in all the tabulation categories. The NSS 57th Round Unorganised Services Sector Survey also covered all the establishments in the non-public sector. However, there were certain tabulation categories for which value added per worker estimates were not available from the Unorganised Services Sector Surveys. These were:

- (a) Air transport,
- (b) Postal Services,
- (c) Public administration,
- (d) Private households with employed persons, and
- (e) Extra-territorial organizations and bodies.

In view of the above, the apportioning exercise had to take into account the total GDP estimate of the relevant tabulation categories. The steps involved in the exercise were the following:

- (i) The total employment in each of the tabulation categories as obtained from NSS 55th and 61st Round Surveys was divided into informal sector employment and others by the criteria of enterprise type and number of workers.
- (ii) The gross value added per worker was estimated separately for informal sector enterprises and others in each tabulation category from NSS 57th Round Survey on Unorganised Services (excluding trade and finance).
- (iii) The employment estimates of specific sectors in each tabulation category were multiplied with the corresponding GVA per worker obtained from NSS 57th Round Survey to get notional estimates of GVA in each sector.

In the case of tabulation categories for which value added per worker estimates were not available either for the units in the informal sector or for the other sector, the overall productivity ratio between informal sector establishments and others in the entire services sector was used for deriving the relevant ratios.

- (iv) The ratios for apportioning the total GDP estimate of each of the tabulation categories in the above service industries were computed by dividing the notional estimates of GDP in the informal sector with the total notional GDP estimate in that category.

The assumption in the methodology is that the productivity in terms of value added per worker for public sector establishments is not very different from the establishments in the organised sector including corporate and co-operative sector establishments.

- (v) The ratios thus worked out were applied to GDP estimates of the respective tabulation categories

to estimate the share of informal sector in the relevant tabulation category.

5.6 Mining, Electricity, Gas & Water supply establishments are largely in the public and corporate sector. Production estimates and other data sets in these sectors are, therefore, mostly available from Government agencies. Major minerals as reported by the Indian Bureau of Mines constitute organised mining for the purpose of national accounts irrespective of ownership of enterprise and employment size. Similarly, in the case of electricity, gas and water supply total activity of electricity and public sector part of gas and water supply are included in the organised sector of national accounts. Here again no ownership and employment size criteria were used for division between organised and un-organised sectors. It is, therefore, necessary to apportion the total GDP for estimating the contribution of informal sector. The methodology adopted for the same involved the following steps:

- (i) The total employment in each of the tabulation categories as obtained from NSS 55th and 61st Round Surveys was divided into informal sector employment and others by the criteria of enterprise type and number of workers
- (ii) The NSS 55th and 61st Round Employment-Unemployment surveys showed the existence of informal sector establishments in these industries. However, estimates of gross value added per worker were not available in the case of these industries from any recent surveys. In the case of these industries and those services for which value added per worker estimates were not available from any recent surveys, the productivity ratios between organised sector establishments and informal sector establishments in the entire services were used for deriving the relevant ratios for apportioning.
- (iii) The above ratios were applied to GDP estimates of the respective tabulation categories to estimate the share of informal sector in the relevant tabulation category.

6. Estimated GVA by Using the Modified Methodology

6.1 By following the above methodology the GDP estimates of Informal Sector in different industry groups were estimated for the years 1999-2000 and 2004-05 and given in Table 2.

Table 2: Estimated GVA by Industry Group
(Figures in crore at current prices)

Industry Group	55th Round (1999-2000)			61st Round (2004-05)		
	GVA		% of Un-organised to total	GVA		% of Un-organised to total
	Unorg-anised	Total		Unorg-anised	Total	
Agriculture	431131	446515	96.55	506990	536629	94.48
Mining	12478	41594	30.00	15204	84464	18.00
Manufacturing	77579	268927	28.85	123859	461531	26.84
Electricity, Gas & Water	1781	44526	4.00	1818	60607	3.00
Construction	45559	102007	44.66	86024	185669	46.33
Trade	179349	231878	77.35	318753	424552	75.08
Hotels & Restaurants	12511	22265	56.19	20211	39781	50.80
Transport & Storage	76381	133373	57.27	111220	250214	44.45
Banking, Finance & Insurance	7852	105662	7.43	15588	167831	9.29
Real estate, Renting & Business Services	98778	127887	77.24	155620	245298	63.44
Public Administration & Defense	4467	122384	3.65	710	177496	0.40
Education	9608	69563	13.81	13145	106580	12.33
Health & Social Work	6026	27640	21.80	12323	53137	23.19
Other Community, Social & Personal Services	23527	38545	61.04	38860	55961	69.44
Private Household & Extra territorial Organisation	3014	3762	80.11	5894	6185	95.29
Total	990041	1786528	55.42	1426218	2855934	49.94

6.2 The share of informal sector in total GDP reduced by about 5.48 percentage points in aggregate between 1999-2000 and 2004-05. Increase in labour productivity of organised sector establishments and decline in the GDP contribution of informal sector in some of the industry groups seem to be the reasons for such a reduction.

6.3 Informal sector GDP estimates at constant prices of 1999-2000 for the year 2004-05 were worked out by deflating the estimates at current prices in each industry group. The ratios at current and constant price GDP estimates released by the CSO were used as price deflators. These estimates along with the growth rates are given in Table 3. There were considerable declines in the informal

sector GDP in the case of Mining, Electricity, Gas & Water Supply and Public Administration & Defence. These sectors were primarily in the public sector and informal sector employment in the last two industry groups reduced considerably during the period from 1999-2000 to 2004-05. In the case of mining, though there was no absolute decline in informal sector employment, its share as a percentage of total employment in the industry declined significantly. This may be due to restrictions/bans imposed by different state governments on various types of quarrying. There were also declines in employment both in unorganised and organised 'other community, social & personal services sectors' though GDP growths were positive.

Table 3: GDP Estimates at 1999-2000 prices and growth rates
(Figures in crore at 1999-2000 prices)

Industry Group	Unorganised Sector			Total		
	1999-2000	2004-05	Growth Rate	1999-2000	2004-05	Growth Rate
Agriculture	431131	456398	1.15	446515	483080	1.59
Mining	12478	9405	-5.50	41594	52250	4.67
Manufacturing	77579	98605	4.91	268927	367426	6.44
Electricity, Gas & Water	1781	1636	-1.69	44526	54531	4.14
Construction	45559	72014	9.59	102007	155431	8.79
Trade	179349	256996	7.46	231878	342297	8.10
Hotels & Restaurants	12511	16266	5.39	22265	32016	7.53
Transport & Storage	76381	107440	7.06	133373	241711	12.63
Banking, Finance & Insurance	7852	12998	10.61	105662	139940	5.78
Real estate, Renting & Business Services	98778	116254	3.31	127887	183247	7.46
Public Administration & Defense	4467	584	-33.43	122384	146031	3.60
Education	9608	11327	3.35	69563	91840	5.71
Health & Social Work	6026	10619	12.00	27640	45789	10.62
Other Community, Social & Personal Services	23527	33486	7.31	38545	48222	4.58
Private Household & Extra territorial Organisation	3014	5079	11.00	3762	5330	7.22
Total	990041	1209107	4.08	1786528	2389141	5.99

7 Differences between the three methods

7.1 A comparison between the three methodologies is given in Table- 4. The ‘modified apportioning method’ is an improvement over other existing methods as it is consistent with the NCEUS definition and takes into account both employment and productivity differentials.

Table 4 Comparison between the Methodologies

Item	CSO	Kolli & Hazra	Sub Group
Definitions of unorganised sectors	Follows different criteria for different industry groups mainly dictated by availability of data	Enterprises employing upto 5 workers with certain exemptions as informal sector which is a sub set of the CSO's unorganised sector.	Proprietary and partnership enterprises employing less than 10 workers
Share of Unorganised Sector	Varies between 57 and 60 percent since 1993-94	58.5 % of NDP belongs to unorganised sector of which 47.7 % is informal in 2001-02.	55.42% in 1999-2000 and 49.94% in 2004-05
Methodology	The GDP estimates of unorganized sector in each compilation category are initially prepared for a bench mark year by using labour input method. The labour input data is obtained from Census of Small Scale Industry, NSS surveys on Employment & Unemployment, DGET etc. For the subsequent years, the benchmark year estimates are extrapolated with appropriate physical indicators and the relevant price indices.	Employment estimates from 55th round for all compilation categories. Value added per worker for services from 57th round and for the rest of the sectors from 55th round. Multiplying the employment with value added per worker to arrive at the informal sector estimates. Keeping the overall unorganised sector as defined by CSO constant.	Value added per worker estimated from 55th, 56th and 57th round unorganised sector surveys. Employment estimates from 55th and 61st Round EUS survey. Apportioning was not limited only to unorganised sector GDP. In the services sector total GDP was apportioned.

8. Estimates of Employment Elasticities

8.1 Employment elasticities of organised and unorganised sectors in different industry groups were estimated by

dividing the GDP growth rates with the corresponding employment growth rates. The relevant growth rates and elasticities are given in Table 5.

Table 5: Employment Elasticities between 1999-2000 and 2004-05

Economic Activity	GVA Growth Rate (%)			Employment Growth Rate (%)			Elasticity		
	Un-organised	Organised	Total	Un-organised	Organised	Total	Un-organised	Organised	Total
Agriculture	1.15	11.64	1.59	1.72	2.20	1.73	1.50	0.19	1.09
Mining	-5.50	8.03	4.67	0.22	6.25	3.97	-0.04	0.78	0.85
Manufacturing	4.91	7.04	6.44	5.13	4.11	4.83	1.04	0.58	0.75
Electricity, Gas & Water	-1.69	4.35	4.14	-1.99	3.16	2.77	1.18	0.73	0.67
construction	9.59	8.12	8.79	8.77	6.58	8.21	0.91	0.81	0.93
Trade	7.46	10.18	8.10	3.85	-3.68	3.43	0.52	-0.36	0.42
Hotels & Restaurants	5.39	10.06	7.53	5.34	8.44	5.72	0.99	0.84	0.76
Transport & Storage	7.06	18.70	12.63	6.09	1.26	4.80	0.86	0.07	0.38
Banking, Finance & Insurance	10.61	5.35	5.78	10.00	5.49	6.54	0.94	1.03	1.13
Real estate, Renting & Business Services	3.31	18.14	7.46	10.25	15.94	11.74	3.09	0.88	1.57
Public Administration & Defense	-33.43	4.29	3.60	-37.01	-1.97	-3.35	1.11	-0.46	-0.93
Education	3.35	6.07	5.71	6.04	6.22	6.17	1.81	1.02	1.08
Health & Social Work	12.00	10.23	10.62	6.03	4.89	5.38	0.50	0.48	0.51
Other Community, Social & Personal Services	7.31	-0.38	4.58	-2.67	-5.10	-2.97	-0.36	13.49	-0.65
Private Household & Extra territorial Organisation	11.00	-20.14	7.22	25.42	-29.13	20.73	2.31	1.45	2.87
Total	4.08	8.18	5.99	2.88	2.94	2.89	0.71	0.36	0.48

8.2 The overall employment elasticity of informal sector was as high as 0.71 as compared to 0.36 in the organised sector and 0.48 for the entire economy. There were positive elasticities in the case of unorganised sector, Electricity, Gas & Water Supply; and Public Administration and Defence due to negative growth rates both in GVA and employment. There were also positive elasticities in the organised sector due to decline in both employment and GVA in the case of other community, social and personal services as well as private households

with paid employees. Among different industries, informal sector agriculture had an employment elasticity of 1.50 as against 0.19 in the formal sector. In the case of manufacturing industries the informal sector elasticity was 1.04 as against 0.58 in the formal sector. Real estate, renting and business services activities in the informal sector had an abnormally high employment elasticity of 3.09. Elasticity was also considerably high in the case of private households with paid employees which is entirely in the informal sector.

9. Limitations and Suggestions for Data Requirements

9.1 The methodology described above for the estimation of the contribution of the Unorganised sector to GDP is only an apportioning method and as such it shares all the limitations and deficiencies of the methodologies used for estimating the overall GDP contribution of each compilation category. Further, there are a number of compilation categories not covered under any of the enterprise surveys. As such, labour productivity differentials are not available for deriving the ratios for apportioning.

9.2 Both the labour force surveys and enterprise surveys of specific industry groups are conducted once in five years. In the intervening years, therefore, estimates of employment and value added per worker have to be extrapolated or the employment and productivity ratios of organised and unorganised sectors in the survey years have to be assumed for subsequent years till fresh survey results become available. In a fast changing transition economy, neither the employment ratios nor the productivity ratios remain constant. It is, therefore, a serious limitation in the use of the methodology for the estimation of unorganised sector GDP.

9.3 The modified apportioning method can at best be considered only as an adhoc procedure for estimating the contribution of un-organised sector to the GDP of the country as and when the required data sets become available through surveys. It is, thus important to ensure that the estimation of unorganised sector GDP becomes an integral part of 'National Accounts Statistics' so that reliable estimates are available on an annual basis. The statistical system of the country, therefore, needs to be strengthened to generate the data sets required for overall improvement of the national accounts statistics in general and for obtaining direct estimates of unorganised sector GDP annually.

9.4 A few suggestions in this regard are the following :

- (i) As recommended by the Rangarajan Commission (Paras 14.2.26 to 14.2.28), expedite the creation and maintenance of a business register covering 'bigger' establishments in all sectors of the economy so as to provide the necessary list frames for conducting annual surveys of both manufacturing and non-manufacturing industries. The business register will also be useful in tracking industrial climate and making business forecasts.
- (ii) Introduce annual surveys of non-manufacturing enterprises in line with the Annual Survey of Industries so that the contribution of services sector to GDP can be estimated more reliably and on an annual basis.
- (iii) Since employment is an important macro-economic variable, data on number of persons employed at the beginning and end of the survey year along with details of addition and attritions need to be collected in the annual surveys of both the manufacturing and non-manufacturing industries apart from collecting details of man-days worked. In the absence of such data, no realistic employment strategies can be formulated.
- (iv) The "Improvement of Crop Statistic Scheme" needs to be used for compiling production indices of agriculture separately for un-organised and organised agriculture after making suitable modification in the design of the scheme. These indices can then be used for the estimation of GDP due to unorganised agricultural activities.
- (v) Enterprise surveys covering all sectors of the economy including mining; electricity, gas and water supply; trade; transport; hotels; restaurants; construction; education; health; financial services and other community and social services have to be conducted on a regular basis. Detailed surveys with completely fresh samples have to be conducted once in five years. However, such surveys have to be conducted as two parallel surveys with separate first stage samples for (i) mining, construction, electricity, gas and water supply and manufacturing, and (ii) trade, transport, education, health, financial intermediation and other community & social services. The first stage units selected for such detailed surveys have to be retained as panels for collecting data on a few selected indicators like births and deaths, employment, addition of fixed capital and output on an annual basis till the next detailed surveys are undertaken. The results of these indicator surveys can be used for bringing forward base year estimates by using econometric models.
- (vi) The present system of approximating the organised sector employment with the estimates provided by the Directorate General of Employment and Training (DGET) needs to be discontinued and instead the quinquennial and annual employment-unemployment surveys of NSSO may be used for

- the estimation of employment in organised and un-organised sectors.
- (vii) Efforts also need to be made to improve the coverage and timeliness of employment statistics being compiled by the DGET to make the series reliable indicators of employment growth in the organised sector.
- (viii) The agencies like the Directorate of Economics & Statistics in the Ministry of agriculture, Indian Bureau of Mines, Central Electricity Authority, which provide data sets to CSO for the preparation of national accounts statistics may be persuaded to provide such data sets separately for unorganised and organised sector establishments.

Appendix 1

Composition of the Subgroup

No. A- 25020/11/2005-NCEUS
Government of India
NATIONAL COMMISSION FOR ENTERPRISES IN
THE UNORGANISED SECTOR

19th Floor, Jawahar Vyapar Bhawan,
1, Tolstoy Marg, New Delhi-01
Dated: 3rd July, 2006.

Office Memorandum

A sub-committee of the Task Force on Definitional and Statistical Issues has been set up with the following composition to review the methods of estimation of contribution of the informal sector to GDP and evolve a proper method consistent with the National Accounts Statistics:

Dr. K.P. Kannan, Member, NCEUS	-	Chairman
Dr. N.S. Sastry, Consultant, NCAER	-	Member
Director General, CSO	-	Member
Director General, NSSO	-	Member
Dr. Raveendran, Consultant, NCEUS	-	Member
Sh. S. V. Ramana Murthy, DS, NCEUS	-	Member Secretary

-sd-

(Suresh Kumar)
Under Secretary

Dr. K.P. Kannan, Member, NCEUS
Dr. N.S. Sastry, Consultant, NCAER
Director General, CSO
Director General, NSSO
Dr. Raveendran, Consultant, NCEUS
Sh. S. V. Ramana Murthy, DS, NCEUS

Copy for information to:

1. PPS to Chairman, NCEUS
2. PPS to MS
3. PA to M (RSS)
4. Dir (MS)

UNORGANISED MANUFACTURING AND SERVICES SECTOR IN THE NEW SERIES OF NATIONAL ACCOUNTS STATISTICS (BASE YEAR, 1999-2000)

1. INTRODUCTION

a. The Central Statistical Organisation (CSO) of the Ministry of Statistics and programme Implementation (MSP), which is responsible for the compilation and release of official estimates of national income and related aggregates, recently released the new series of national accounts statistics with base year 1999-2000. The base year 1999-2000 was chosen to coincide with the year of previous Quinquennial Employment and Unemployment Survey, which was conducted by the National Sample Survey Organisation (NSSO) in the year 1999-2000. The results of this Survey formed the basis for the workforce estimates used in the new series of national income estimates, especially for the unorganised sectors.

b. The paper presents in Section 2, the procedures of estimating the workforce and value added per worker (VAPW), which are the two components in the estimation of GVA of unorganised segments of the economy in the base year. The methodology of estimating the GVA in the base year, as well as for the subsequent years, in respect of various economic activities in the unorganised manufacturing and services sectors in the new series has been briefly outlined in Sections 3 and 4. The important data sets that are needed to be introduced into the statistical system of the country for improving the quality of service sector statistics are discussed in Section 5.

2. ESTIMATION OF WORKFORCE AND VALUE ADDED PER WORKER (VAPW) IN THE BASE YEAR 1999-2000

2.1 In the absence of annual enterprise surveys, the GDP estimates in respect of (i) unorganized segments of manufacturing and services sectors, and (ii) for some segments of private organized services sectors, are compiled through indirect methods, using the benchmark-indicator procedure. In this procedure, the

benchmark GDP estimates are initially prepared at detailed activity level for the base year of national accounts series using the estimated workforce engaged and the value added per worker (VAPW) in the activity. For subsequent years, the GDP estimates are extrapolated with appropriate indicators relevant to the economic activity.

2.2 While introducing the 1993-94 series, various sources were examined in depth for identifying the appropriate data source for use in national accounts compilation. After a detailed analysis of all these sources and with the approval of the Advisory Committee on National Accounts Statistics, it was decided to adopt, at I-digit level of the National Industrial Classification (NIC), the WPRs (separately for rural/urban and male/female) available from the Quinquennial Survey on Employment and Un-employment, 1993-94 (50th round) of the NSSO and the estimated population for the period made available by the Office of the Registrar General of India (RGI). The estimates of workforce thus obtained at the I-digit level with rural/urban and male/female break up were further distributed to 2 and 3-digit levels of NIC in proportion to the working force as on 31st March 1991 available from the 1991 Population Census.

2.3 For arriving at appropriate workforce estimates for use in the new series, the Advisory Committee on National Accounts Statistics (presently Chaired by Prof. S.D. Tendulkar) appointed a Working Group (WG) on Workforce estimation under the chairpersonship of Smt. Grace Mazumdar, in December, 2002. The Committee submitted its Report in March, 2004 and the same was published by the CSO, entitled "Report of the Working Group on Workforce Estimation for Compilation of National Accounts Statistics with Base Year 1999-2000".

2.4 In its Report, the Working Group recommended the detailed sources and methodology to be adopted for the new series for arriving at the estimates of workforce

in various compilation categories, using the data available from the NSS 55th Round and Population Census, 2001. The Working Group refers to the workforce (number of workers) in each of the economic activities as *labour input*, which is also the job count in these activities. The data on total number of jobs performed in each economic activity is not directly available. The available data on employment from the NSSO is through household enquiry method, which gives data on number of workers. The difference between the number of workers and the number of jobs is the multiple jobs performed by employed persons. The detailed procedure of obtaining the number of jobs performed in each economic activity from the available data sources is given in the Report of the Working Group. In this context, the following is quoted from the Report of the Working Group:

“The WG recommends that the CSO should continue to use the data available from the following sources for estimating *labour input* at the national level:

- Employment and Unemployment Survey (EUS) of the NSSO;
- Employment in the Organised Sector data of the DGET; and
- Annual Survey of Industries (ASI).
- Population Census (PC);

For manufacturing and services, the recommended method also specifies the levels at which compilation of national accounts should be attempted - the corresponding activity-groups recommended for this purpose are called compilation categories in this report. The method described below is meant for restricted application only to the segments of the economy comprising the manufacturing and service-producing activities. The following is a step-wise description of the recommended method:

- (i) Obtain the mid-year population from the PC for the four segments of the population, viz. rural male, rural female, urban male and urban female.
- (ii) Obtain the activity-specific rates of *labour input* as the *labour input* per thousand population estimated from EUS for each identified compilation category. The survey-based estimate of *Labour input* would be arrived at as the sum of EUS estimates of (a)

persons reporting *principal-capacity* employment, and (b) persons reporting *subsidiary-capacity* employment (usual status) in the respective manufacturing or service-producing activities, separately for the four population segments.

- (iii) Apply the rates of *labour input*, as obtained in Step (ii), on the male and female populations of rural and urban areas, as obtained in Step (i), to get the required estimates of *labour input* in each of the four segments of the population, separately for each of the compilation categories.
- (iv) Obtain the base year estimates of *labour input* for each of the compilation categories as the sum of the respective estimates of *labour input* in the four population segments.
- (v) Extrapolate the base-year estimate of *labour input* for each compilation category using the respective growth rate in *labour input* observed between the two most recent EUSs to arrive at estimated *labour input* for the subsequent years.
- (vi) Finally, for the base year as well as the subsequent years, obtain the estimates of unorganised segment *labour input* in the identified compilation categories using the Employment Market Intelligence (EMI) data of the DGET of the respective years.”

2.5 The Working Group also provided national-level estimates of total *labour input* for the recommended compilation categories obtained by applying steps (i) to (iv) mentioned above, in Appendix 4.3 of the Report. The data presented in the Report under this Appendix refers to the *labour input* for the mid-financial years of 1993-94 and 1999-2000, based respectively on the EUS of the 50th and 55th rounds of the NSSO and PC based population projections, and also the annual compound growth rates derived from these estimates for the compilation categories. On the estimates of labour input and annual growth rates in the labour input, the Working Group observed that these are consistent in most cases with the general perception of developments during the 1990s. However, the Working Group also observed that for some of the activities like selling motor vehicles, wholesale trade except motor vehicles, textile industry and food processing, the growth rates are doubtful,

perhaps due to misclassification of the workers and lack of exact concordance between NIC 1987 and NIC 1998. In view of these observations, the Working Group recommended external validation of the *labour input* estimates of all the compilation categories in general and the doubtful cases in particular, using data from other sources like PC 2001 and the contemporary enterprise surveys, whenever these become available.

2.6 In view of the observations of the Working Group, further validation of estimates of workers for some compilation categories was done for the new series using the limited single-digit (industry) level (NIC 1998) workforce data obtained from the RGI (detailed information on workforce was not released by the Office of the Registrar General of India at the time of the release of new series), and the same was compared with the NSS 55th round data obtained from the NSSO. While comparing the two sets of data, the number of workers in both sources was adjusted to bring them as on 1st October, 1999. Since the basic structure of the recommendations and data on workforce provided by the Working Group was to be adopted for the new series, the adoption of alternative sets of data compiled using the NSS and Population Census, 2001 based workforce data [for individual activities, the NSS data was multiplied by I-digit (NIC 1998) level ratio of workforce from Population Census to the workforce from NSS] was restricted to the doubtful cases mentioned in the Working Group Report, in addition to few others. These compilation categories are (i) sale of motor vehicles, (ii) wholesale trade except for motor vehicles and auctioning activities, (iii) storage and warehousing, (iv) sewage and refuse disposal, sanitation and similar activities, (v) activities of membership organizations, n.e.c. and social work with accommodation, (vi) recreational, cultural and sporting activities, and (vii) private households with employed persons. While the estimates of workforce in public sector and private organized sector are available annually from the DGET, those for the unorganized sector are derived as residual by deducting the organized sector workforce estimates from the total workforce of that compilation category.

2.7 The estimates of VAPW for the unorganized and some private organized segments of manufacturing (non-

SSI part) and services sectors have been compiled from the detailed data available from the NSS 55th round (1999-2000) on informal nonagricultural enterprises, NSS 56th round (2000-01) on manufacturing enterprises in the unorganised sector, and NSS 57th round (2001-02) on unorganised enterprises in service sector (excluding trade and finance). The estimates of VAPW at the compilation category level have been arrived at as a ratio of the gross value added to the total employees in the particular compilation category. The following adjustments have been made while processing the data for estimating the VAPW.

- (i) Rent on land and building has been treated as factor income, in the absence of data on rent on land ;
- (ii) Wherever the survey results are for years other than 1999-2000, suitable adjustments have been made on the VAPWs using CPI-AL and CPI-IW to arrive at the estimates for the benchmark year 1999-2000.
- (iii) Wherever the unit level data has shown either zero or very low value of output, but has entries against inputs and salary and wages, the same have been assumed to be outliers and have been removed from the estimation of VAPW. However, the number of such records removed from the data processing were very low.

3. ESTIMATION OF GDP OF UNORGANISED MANUFACTURING AND SERVICE SECTORS

3.1 The estimates of GDP by economic activity for the year 1999-2000, according to the new series and the 1993-94 series, have been presented in Table 1 below. According to this Table, the level of GDP has gone up by Rs. 30,454 crore or 1.7 per cent, in the new series in 1999-2000. Out of the industries, maximum upward revision in GDP data is witnessed in the 'real estate, ownership of dwellings and business services' sector, which is on account of increase in the number of dwellings than what was earlier projected for the year 1999-2000, as per the data available from the Population Census, 2001.

Table 1: Estimates of GDP at factor cost by kind of economic activity, 1999-2000

(Rs. Crore)

Industry (1)	1993-94 series (2)	New Series (3)	Difference (3) - (2)	Weight
1. Agriculture, forestry and fishing	4,61,964	4,54,061	-7,903	25.3
1.1 Agriculture	4,22,392	4,15,334	-7,058	23.2
1.2 Forestry and logging	19,555	19,482	-73	1.1
1.3 Fishing	20,017	19,245	-772	1.1
2. Mining and quarrying	41,298	41,594	296	2.3
3. Manufacturing	2,66,704	2,64,113	-2,591	14.7
3.1 Registered	1,70,822	1,73,003	2,181	9.7
3.2 Unregistered	95,882	91,110	-4,772	5.1
4. Electricity, gas and water supply	42,299	44,732	2,433	2.5
5. Construction	1,05,297	1,05,149	-148	5.9
6. Trade, hotels and restaurants	2,46,037	2,54,143	8,106	14.2
6.1 Trade	2,29,004	2,31,878	2,874	12.9
6.2 Hotel and restaurants	17,033	22,265	5,232	1.2
7. Transport, storage and communication	1,24,307	1,31,754	7,447	7.4
7.1 Railways	15,623	19,504	3,881	1.1
7.2 Transport by other means	81,855	82,377	522	4.6
7.3 Storage	1,262	1,427	165	0.1
7.4 Communication	25,567	28,446	2,879	1.6
8. Financing, insurance, real estate and business services	2,20,559	2,32,752	12,193	13.0
8.1 Banking and insurance	1,19,075	1,05,662	-13,413	5.9
8.2 Real estate, ownership of dwellings and business services	1,01,484	1,27,090	25,606	7.1
9. Community, social and personal services	2,53,373	2,63,994	10,621	14.7
9.1 Public administration and defence	1,16,686	1,19,671	2,985	6.7
9.2 Other services	1,36,687	1,44,323	7,636	8.1
10. Total GDP at factor cost	17,61,838	17,92,292	30,454	100.0

Unregistered manufacturing

3.2 The All-India estimates of GVA from un-registered manufacturing sector are obtained as a product of workforce and GVA per worker in terms of labour productivity and labour input based on (i) estimates from the latest surveys on unorganized manufacturing and (ii) census of small scale undertakings.

3.3 The GVA estimates for the new series for this sector for the base year 1999-2000 have been prepared separately for the two segments of the unregistered manufacturing sector, namely (i) the segment of Small

Scale Industries (SSI) (other than those covered under the ASI), and (ii) the rest of the unorganized manufacturing sector, i.e. the manufacturing sector which is not covered under either the ASI or the SSI. The industry-group-wise estimates for these segments are presented in Table 2.

3.4 The GVA for the SSI segment for the new series has been estimated using the value of output data available from the results of Third All India Census on Small Scale Industries units, 2001-02 published by the Development Commissioner, Small Scale Industries and the GVA/GVO ratios available from the results of NSS 56th round survey

on unorganized manufacturing (The estimates of GVA are not separately available in the results of SSI Census). Due adjustments have been made to bring the estimates of GVA of the SSI segment to the price levels of 1999-2000.

Table 2: Estimates of workforce in the unregistered manufacturing sector, 1999-2000

NIC-98 Code	Description	Total workers- manf. sector (1)	Total workers- regd. manf. sector (2)	Total workers- -unregd. manf. sector - SSI part (3)	Total workers- unregd. manf. sector non- SSI part (4)=(1)-(2)-(3)
151	production, processing and preservation of meat fish, fruits, vegetable oils & fats	8,02,725	1,16,794	1,06,165	5,79,766
152	manufacturing of dairy products	2,72,514	54,333	19,973	1,98,208
153	manufacturing of grain mill products, etc and animal feeds	27,60,601	2,46,385	2,91,912	22,22,304
154	manufacturing of other food products	24,86,186	5,69,731	1,81,679	17,34,776
155	manufacturing of beverages	4,55,419	54,110	40,762	3,60,547
16	manufacturing of tobacco products	46,35,640	4,49,257	27,732	41,58,651
171+172 +173	spinning, weaving and finishing of textiles etc.	81,11,709	12,06,747	4,04,113	65,00,849
181-18105	wearing apparel, except fur apparel & tailoring	25,84,668	2,49,878	1,30,910	22,03,880
182+19	tanning and dressing of leather, fur and fur products.	11,90,030	1,00,568	1,02,949	9,86,513
20	manufacturing of wood and products of wood except furniture	53,34,786	40,259	1,79,366	51,15,161
361	manufacturing of furniture	8,54,054	17,838	2,59,766	5,76,450
21+22	manufacturing of paper and paper products, publishing, printing etc.	12,89,544	2,12,917	2,24,323	8,52,304
23+25	coke, refined petroleum products, nuclear, rubber & plastic products	12,18,254	2,56,843	1,98,835	7,62,576
24	mfg of chemical and chemical products	19,04,312	5,52,446	2,73,858	10,78,008
26	manufacturing of other non-metallic mineral products	40,08,775	3,59,945	4,69,885	31,78,945
271+272+ 2731+2732	manufacturing of basic iron and steel and non-ferrous metals	11,48,808	4,79,567	1,48,993	5,20,248
371+372	recycling of metal waste and scrap+ non-metal scrap	20,799	280	3,633	16,886
28+29+30	manufacturing of fabricated metal products, machinery & equipment n.e.c	37,39,000	5,16,858	7,84,793	24,37,349
31+32	elect. machinery and apparatus n. e. c.+ radio, tv & communication equipment	11,47,288	2,39,231	1,14,340	7,93,717
33+369	manufacturing of medical, precision and optical instruments, watches clocks etc.	27,05,017	1,31,694	98,542	24,74,781
34+35	motor vehicles, trailers and semi-trailers& other transport equip	6,18,226	3,40,241	75,207	2,02,778
Total		4,72,88,355	61,95,922	41,37,736	3,69,54,697

Table 3: Estimated GVA of unregistered manufacturing sector, 1999-2000
(Output and GVA in Rs. crore, workforce in numbers and VAPW in Rs.)

Comp- ilation category	Description	Output	SSI Ratio GVA/ GVO	GVA	Work- force	Non-SSI VAPW	GVA	Total GVA
151	Production, processing and preservation of meat fish, fruits, veg, oils, fats	6,192	0.1707	1,057	5,79,766	18,945	1,098	2,156
152	Mfg. of dairy products	900	0.2120	191	1,98,208	15,774	313	503
153	Mfg. of grain mill products, animal feed	14,105	0.2246	3,168	22,22,304	14,610	3,247	6,415
154	Mfg. of other food prods	3,655	0.2836	1,037	17,34,776	18,079	3,136	4,173
155	Mfg. of beverages	773	0.4653	360	3,60,547	13,584	490	849
16	Mfg. of tobacco prods.	775	0.6373	494	41,58,651	6,583	2,738	3,232
171* + 172 + 173	Spinning, weaving and finishing of textiles, etc.	8,985	0.4075	3,661	65,00,849	13,404	8,714	12,375
181- 18105	Wearing apparel, except fur apparel & tailoring	3,299	0.6444	2,126	22,03,880	15,779	3,478	5,603
182+19	Tanning and dressing of leather, fur and products	3,159	0.3610	1,140	9,86,513	26,588	2,623	3,763
20	Mfg. of wood, products of wood except furniture	2,716	0.5110	1,388	51,15,161	11,397	5,830	7,217
361	Mfg of furniture	2,601	0.4505	1,172	5,76,450	25,944	1,496	2,667
21+22	Mfg. of paper, prods. publishing, printing etc.	4,065	0.3646	1,482	8,52,304	26,518	2,260	3,743
23+25	Coke, refined petroleum products, nuclear, rubber & plastic products	5,577	0.2729	1,522	7,62,576	28,585	2,180	3,702
24	Mfg of chemical and chemical products	10,043	0.2010	2,018	10,78,008	15,385	1,658	3,677
26	Mfg of other non-metallic mineral prods.	5,039	0.3991	2,011	31,78,945	15,290	4,861	6,872
271+ 272+ 2731+ 2732	Mfg of basic iron and steel and non-ferrous metals	8,913	0.2005	1,787	5,20,248	44,471	2,314	4,101
371+ 372	Recycling of metal waste and scrap+ non-metal scrap	272	0.3348	91	16,886	21,497	36	127

Comp- Description ilation category	Output	SSI Ratio GVA/ GVO	GVA	Work- force	Non-SSI VAPW	GVA	Total GVA
28+29+ 30 Mfg of fabricated metal products, machinery and equipment n.e.c.	16,723	0.3651	6,106	24,37,349	26,133	6,370	12,475
31+32 Elect. Machinery and apparatus n. e. c. + radio, TV & commn. equip.	4,061	0.0415	168	7,93,717	37,904	3,009	3,177
33+369 Mfg of medical, precision and optical instruments, watches, clocks etc.	2,080	0.4676	973	24,74,781	21,224	5,252	6,225
34+35 Motor vehicles, trailers & other transport equip	2,628	0.3607	948	2,02,778	42,307	858	1,806
Total GVA excl. FISIM	1,06,564		32,901	3,69,54,697		61,959	94,859

* includes 01405 cotton ginning and baling.

3.5 The estimates of other unregistered manufacturing units, i.e. the units not belonging to SSI group mentioned above, have been compiled using information on GVA per worker from the integrated surveys of enterprises and households in the 56th round (2000-01) Table 3. The GVA per worker from 56th round of NSS that relates to the year 2000-01 has suitably been deflated to 1999-2000. The estimates of work force for this portion of unregistered manufacturing i.e. for the units neither belonging to ASI nor to SSI, have been obtained from the total work force on manufacturing activities by subtracting the workforce relating to ASI and SSI (non-ASI) segments. With these changes, and the shifting of repair services to the trade sector as per NIC 1998, the estimates of GDP from this sector for the base year 1999-2000 gets revised downwards by Rs. 4,772 crore and now stands at Rs. 91,110 crore as against Rs. 95,882 crore estimated in the old series.

Trade, hotels and restaurants

Trade

3.6 The Trade sector includes wholesale and retail trade in all commodities whether produced domestically, imported or exported. It also includes the activities of purchase and selling agents, brokers and auctioneers. In the old series, the GDP estimates were prepared for the trade sector as a whole covering categories (NIC 1987 codes of 6, excluding 69, 840, 841, and 890).

3.7 In the new series, there is change in the coverage of trade sector. This sector now comprises the following five categories, as per NIC 1998 classification:

- (i) 502+50404, "Maintenance and repair of motor vehicles" (new item)
- (ii) 50-502-50404, "Sale of motor vehicles"
- (iii) 51+74991, "Whole sale trade except of motor vehicles + Auctioning activities"
- (iv) 526, "Repair of personal and household goods" (new item)
- (v) 52-526, "Retail trade (except motor vehicles)."

3.8 The GVA estimates (Table 4) of Trade sector have been prepared separately for:

- (i) Public sector having units engaged in retail and whole sale trade (except of motor vehicles) + Auctioning activities;
- (ii) (ii) Private Organised sector consisting of (a) Private Corporate units engaged in retail and wholesale trade (except of motor vehicles) + Auctioning activities, (b) Trading Co-operative units engaged in retail and wholesale trade (except of motor vehicles) + Auctioning activities, (c) Maintenance and repair of motor vehicles and (d) Repair of personal household goods;
- (iii) Private Unorganised sector having units engaged in all the five categories

3.9 The contribution of the unorganized segment has been estimated as a product of workforce and value added per worker. The workforce estimates have been prepared using the results of NSS 55th round survey on Employment-Unemployment (WPRs), 1999-2000 along with the data on population from the Population Census 2001. The estimates of workforce of private unorganized part for all five categories (rural and urban) has been obtained for the benchmark year 1999-2000, by subtracting the estimated workforce in public sector and the private organized segment, available from DGET (assuming that DGET

workforce includes the workforce of co-operative as well) from the total workforce of the sector. The GVA per worker used for the new series is that of 'all enterprises' category available in informal sector survey conducted in NSS 55th round (1999-2000). There has been no separate survey on Trade sector during the last about 10 years.

3.10 It may be noted that in the new series for trading activity, the activities relating to NIC, 1998 codes, 502 and 526 have also been included for the first time under trade sector. Previously, they were part of manufacturing sector.

Table 4: Estimates of GDP of trade sector, 1999-2000

Trade Sector	1993-94 series	New series	Difference
(1) Public	5,640	5,640	
(i) Wholesale and retail trade except motor vehicles Auctioning activities (52-526+51+74991)	5,640	5,640	
(2) Private organized	37,703	29,305	-8,398
(i) Wholesale and retail trade except motor vehicles+ Auctioning activities (52-526+51+74991)		27,585	
(ii) Maintenance and repair of motor vehicles (502+50404)		1,393	
(iii) Repair of personal household goods		327	
(3) Private unorganized	1,93,638	2,04,199	10,561
(i) Maintenance and repair of motor vehicles (502+50404)		5,237	
(ii) Sales of motor vehicles (50-502-50404)		4,497	
(iii) Repair of personal household goods (526)		9,752	
(iv) Retail trade except motor vehicles (52-526)		1,42,901	
(V) Wholesale (except motor vehicles) + Auctioning activities (51+74991)		41,812	
Total- Unadjusted for FISIM	2,36,980	2,39,143	2,163
FISIM	7,976	7,265	-711
Total- net of FISIM	2.29.004	2.31.878	2.874

Hotels and restaurants

3.11 This sector comprises activities covered in the categories 551 and 552 as per NIC, 1998.

3.12 The methodology followed for estimating GDP of public, private organized and private unorganized in the new series includes estimation of GVA per worker from Enterprise survey conducted during 57th round (2001-02) of NSS and workforce estimates from Employment -Unemployment Survey, 1999-2000 along with Population Census 2001. The estimates are given in Table 5.

Table 5: Estimates of GDP of Hotels and restaurants sector, 1999-2000

Hotels and restaurants	1993-94 series	New series	difference
(1) Public	294	294	-
(2) Private organized	6,752	6,010	-742
(3) Private unorganized	10,006	16,709	6,703
Total- unadjusted for FISIM	17,052	23,013	5,961
FISIM	19	748	729
Total- Net of FISIM	17,033	22,265	5,232

Transport by means other than railways and storage

3.13 The GDP of Transport by other means and storage for the year 1999-2000 at current prices has been revised from Rs. 83,117 crore in the old series to Rs 83,804 crore in the new series. This upward revision in the GDP in the new series has been due to use of results of latest surveys. In the 1993-94 series, the GVA per worker was taken from Enterprise Survey of 1993-94, whereas for the new series, the GVA per worker has been taken from the Enterprise Survey of NSS-57th round (2001-02).

3.14 In the 1993-94 series, GVA estimation for services incidental to transport (sub sector of transport by other means) was on the basis of annual data on commissions

paid to the booking agencies by shipping companies and air companies. Whereas in the 1999-2000 series, GVA estimate has been prepared by multiplying the workforce (duly adjusted for public sector) with GVA per worker available from the Enterprise Survey 2001-02 results for the respective NIC codes. The economic activities of Airport Authority were included under Air transport sub-sector in the 1993-94 series. This has now been shifted to the sub-sector 'service incidental to transport'. Similarly, supporting service to water transport which was part of water transport, has been shifted to 'service incidental to transport' in the new series. The estimates of GDP for 'transport by other means and storage' sector for the year 1999-2000 in the old and new series are given in Table 6.

Table 6: Estimates of GDP for Transport by other means and storage, 1999-2000

	1993-94 series	New series	difference
A. Transport by other means			
(1) Public			
(i) Mechanised road transport	6,811	7,206	395
(ii) Water transport	3,345	954	-2,391
(iii) Air transport	3,940	2,965	-975
(2) Private organized			
(i) water transport	1,375	1,375	-
(ii) Air Transport	485	485	-
(3) Private unorganized			
(i) Mechanized road transport	48,854	51,126	2,272
(ii) non-mechanised road transport	5,654	9,807	4,153
(iii) Water transport	6,600	1,399	-5,201
(4) Service incidental to transport	5,848	8,038	2,190
Total - Unadjusted for FISIM	82,911	83,356	445
FISIM	1,056	979	-77
A. Total - net of FISIM	81,855	82,377	522
B. Storage			0
1. Warehousing corporations (public)	481	481	0
2. Cold storage	180	250	70
3. Storage (unorganized)	617	711	94
Total - Unadjusted for FISIM	1,278	1,443	165
FISIM	16	16	0
B. Total - net of FISIM	1,262	1,427	165

Communication

Private Communication Services

3.15 The economic activities covered under this sector are (i) Courier activities (NIC-98, code-64120), (ii) Activities of the cable operators (NIC-98, code-64204) and (iii) Other communication (NIC-1998, code- 642 (-) 64204). In the 1993-94 series, initially the estimates of GVA of private communication services as a whole for the base year 1993 -94 were prepared using NSS based estimates of workforce and value added per worker from the Enterprise Survey, 1991-92. The private sector work force was obtained after subtracting the public sector

work force of communication services taken from DGET publication "Employment Review" from the total work force of communication services. The methodology was reviewed and latest available data were used from the year 1997-98 onwards keeping in view the activities covered under "Pvt. Communication" and separate estimates for cellular mobile, courier services, and public call office booths (PCOs) were compiled.

Courier Services

3.16 The estimates of GVA for courier services for the year 1999-2000 have been compiled using the estimates of value added per worker (VAPW) from the results of

NSS 57th round survey on services sectors, 2001-02 and workforce estimates mentioned in Section 2 above, separately for Rural/Urban/organized/un-organised segments. The organized sector estimate has been prepared using DGET workforce and corporate sector value added per worker from the results of NSS 57th round survey. The estimated GVA for the un-organised sector has been compiled by subtracting the estimated workforce in organized sector (DGET source) from the total workforce and the estimated VAPW for un-organised sector from the results of NSS 57th round. The estimates of GVA for the year 1999-2000 are Rs. 902 crore and Rs. 485 crore, in the old and new series respectively. The fall in GVA in the new series has primarily been due to difference in the extrapolated workforce estimate for the year 1999-2000 between the old series and that in the new series.

Activities of cable operators

3.17 The activities covered under this compilation category are the activities of cable operators, and the estimates of GVA for these services for the year 1999-2000 have been compiled using the estimated VAPW of rural/urban from the NSS 57th round survey results and the estimated workforce in the economic activity. No separate estimates for this category were prepared in 1993-94 series. The estimated GVA for the year 1999-2000 is Rs. 394 crore in the new series, for this activity.

Communication services other than those of couriers and cable operators

3.18 The activities covered under this compilation category are all communication activities in the private sector other than those of couriers and cable operators. This subsector covers the activities of cellular and basic telecom services, and the activities of PCOs.

3.19 The estimates of GVA for other communication services for the year 1999-2000 have been compiled using the estimated VAPW from NSS 57th round survey results and the estimated workforce in the activity, separately for Rural/Urban/organized/unorganised segments. The private organized sector estimates have been prepared using the data on estimated workforce (from the DGET source) and the estimated VAPW from NSS 57th round survey results in respect of corporate sector. The estimates for the year 1999-2000 are Rs. 850 crore and Rs. 3,714 crore in the old and new series, respectively. The increase is due to broader coverage of the activity in the new series. In the old series the estimates were prepared only for PCOs and cellular mobile services. In the new series the economic activities of internet, cyber cafes, etc. have also been included. Moreover, the difference between the extrapolated workforce estimate used in old series for the year 1999-2000 and the latest data available from the NSS 55th round for the year 1999-2000 has also been quite high. The estimated GVA in respect of private communication subsector for the year 1999-2000 in the new series is given in the table Table 7.

Table 7: GVA of Private Communication, 1999-2000

(Rs. crore)

Activities	1993-94 Series	New Series	Difference
Courier	902	485	-417
Organised		34	
Unorganised		451	
Cable operators - unorganised		394	394
Other communication	850	3,714	
Organised	397	188	
Unorganised	453	3525	2,864
Total private communication	1,752	4,593	2,841

Real estate, ownership of dwellings, legal and business services

3.20 The economic activities covered in this sector are (i) ownership of dwellings (occupied residential houses), (ii) real estate services (activities of all types of dealers

such as operators, developers and agents connected with real estate), (iii) renting of machinery and equipment without operator and of personal and household goods, (iv) computer and related activities, (v) accounting, book-keeping and related activities, (vi) research and

development, market research and public opinion polling, business and management consultancy, architectural, engineering and other technical activities, advertising and business activities and (vii) legal services. The activity of ownership of dwellings includes the imputed value of owner occupied dwellings. Services rendered by non-residential buildings are considered to be a subsidiary activity of the industries, which occupy the buildings and, therefore, are not included in this sector.

3.21 In the new series, research and scientific services have been included under “real estate, ownership of dwelling and business services sector”, whereas the same was part of “other services” sector in the old series.

3.22 The major data sources for estimating the GVA for this sector are, NSS 55th round survey on Employment and Unemployment, 1999-2000, and Population Census, 2001 for estimates of workforce and the results of NSS 57th round survey on services sector for estimates of VAPW, annual reports of software companies, The National Association of Software and Service Companies (NASSCOM) data on output of software services, Population Census, 2001 for information on residential houses in urban and rural areas, and the results of NSS 55th round on consumer expenditure for estimates on rent per household, and various price indices, namely, CPI (agricultural labourers), CPI (industrial workers) and CPI (urban non-manual employees).

Real Estate

3.23 This sub-sector includes buying, selling, renting and operating of self-owned or leased real estate such as apartment building and dwellings, non-residential buildings, developing and subdividing real estate into plots, etc. Also included are developments and sale of land and cemetery lots, operating of apartment hotels and residential mobile home sites. Purchase, sale, letting and operating of real estate - residential and non-residential buildings, developing and subdividing real estate into lots, lessors of real property, Real estate activities with own or leased property, real estate activities on a fee or contract basis.

3.24 The estimates of GVA for these services in 1993-94 series were prepared using NSS 50th round results for work force and VAPW estimates from the Enterprise

Survey, 1991-92 duly adjusted for 1993-94 prices, separately for rural and urban areas. The price indices, CPI (AL) and CPI (UNME) were used for rural and urban areas respectively for moving forward the 1991-92 VAPW estimates to 1993-94 prices.

3.25 The estimates of Value Added for the base year (1999-2000) from these services in the new series have been prepared using the estimates of VAPW from NSS 57th round and the estimated workforce from NSS 55th round (as mentioned in Section 2), separately for rural/urban /organized/unorganized sectors. The estimates for the year 1999-2000 are Rs.708 crore and Rs.1,373 crore, respectively in the old and new series. Increase in the new series estimate for the year 1999-2000 has been due to the increase in workforce and the estimated VAPW.

Renting of machinery and equipment without operator

3.26 The activities covered under this compilation category are the activities of renting of machinery and equipment without operator and personal and household goods. The estimates of GVA for these activities have been compiled separately in the new series by using the estimated VAPW and workforce in the activity, from the results of NSS 57th round and NSS 55th round, respectively. The estimate for the year 1999-2000 is Rs 1,407 crore in the new series. This activity has been covered for the first time.

Computer and related activities in private sector

3.27 The activities covered under this compilation category are hardware consultancy, software consultancy and supply, data processing, database activities, maintenance and repair of office/ accounting! computing machinery and other computer related activities. In the old series, GVA estimates for software activities in the private sector were prepared using data on production of software services made available by NASSCOM and the value added ratio (GVA to output ratio) estimated from the analysis of annual reports of few software companies.

3.28 The estimates of GVA for the new series of NAS have been compiled for organised and unorganised segments, separately. The GVA estimates for organised

sector have been prepared using NASSCOM's data on production of software services and the value added ratio estimated from the analysis of annual reports of few software companies. The estimates of GVA for the year 1999-2000 for the unorganised segment have been prepared using the data on workforce and VAPW from the results of NSS 55th round and NSS 57th rounds, respectively. The estimates were prepared separately for rural and urban areas. The estimates of GVA for the year 1999-2000 are Rs 14,619 crore and Rs 17,187 crore in old and new series respectively. The increase is due to broader coverage in the new series.

Legal activities

3.29 The activities covered in this category are legal services such as those rendered by advocates, barristers, solicitors, pleaders, mukatiars, etc. The estimates of GVA for these services in 1993-94 series were prepared using data obtained from the Bar Council of India on workforce and VAPW estimated from the results of Enterprise Survey, 1991-92 duly adjusted for 1993-94 prices, separately for rural and urban areas. The estimates of GVA for legal services in the new series for the year 1999-2000 have been prepared using the data on workforce and VAPW from the results of NSS 55th round and NSS 57th rounds, respectively, also separately for rural/urban/organized/unorganised sectors. The estimates of GVA for the year 1999-2000 in are Rs 3,572 crore and Rs 3,062 crore in the old and new series respectively. The change is due to difference in workforce of Bar-council used in the old series and the estimates of workforce adopted in the new series for the NSS 55th round.

Accounting, book-keeping and related activities in private sector

3.30 The activities covered under this compilation category are accounting, book-keeping and auditing activities and tax consultancy services. In the 1993-94 series, GVA estimates for activities of accounting and book-keeping etc. in the private sector for the base year were prepared using VAPW estimates of public administration and defence and labour input estimates based on NSS Employment and Unemployment Survey,

1993-94 (50th round). The estimates of GVA for accounting and book-keeping services etc. in the private sector in the new series for the year 1999-2000 have been prepared following the labour input method by using the data on workforce and VAPW from the results of NSS 55th round and NSS 57th rounds, respectively, separately for rural and urban areas. The estimates for the year 1999-2000 in the new series are Rs. 2,019 crore and Rs. 1,725 crore in the old and new series, respectively. The marginal fall in the level of GVA estimates in this activity has been due to the adoption of the estimates of VAPW from the NSS 57th round, as compared to the previous series, where the VAPW of public administration was adopted.

Research and development, market research and public opinion polling, business and management consultancy, architectural, engineering and other technical activities, advertising and business activities n. e. c. excluding auctioning

3.31 This compilation category has been introduced after re-grouping the activities under business services and other services. In the 1993-94 series, the estimates of Research and scientific services (NIC-87 code 922) were included under 'other services'. In NIC-98, this activity is classified under code 73, which is under 'business services', and as such in the new series this activity has been included under 'business services'. Similarly, the GVA estimates of 'press agency activities' falling under NIC-87 code 897 were being compiled, though not exclusively, under the category of 'business services' in the 1993-94 series. Now, this activity falls under 'news agency activities', which is classified under NIC-98 code 922, and the GVA estimates for this activity have been included under 'other services' in the new series. Thus, the comparison of GVA estimates of 'business services' in the 1993-94 series, and the new series, has to be done keeping these aspects in view.

3.32 Table 8 gives all the activities to be covered in this category vis-a-vis the activities of NIC-87, for which GVA estimates under business services were prepared in 1993-94 series.

Table 8: Coverage of activities under business services in NIC 1998 and NIC 1987

NIC 98 Code	Activity description	NIC 98 Code	Activity description
73	Research and scientific semces	922	Research and scientific semces
7413	Market research and public opinion polling	893	Business and consultancy activities (including market research)
7414	Business and management consultancy activities		
742	Architectural engineering and other technical activities (including technical testing and analysis)	894	Architect/engineering and other technical consultancy
895	Technical testing and analysis		
743	Advertising	896	Advertising
749(-)74991	Business activities n.e.c. (excluding auctioning)	898	Recruitment and of personnel
		899	Other business activities n.e.c.

3.33 In the 1993-94 series, GVA estimates for these activities were prepared separately for organised and unorganized segments using labour input method (estimated workforce in the activity x average VAPW in the activity) separately for rural and urban areas. The estimates of GVA for this compilation category have been prepared separately for organized and unorganised segments and for rural and urban areas for the base year in the new series by using the data on workforce and VAPW from the results of NSS 55th round and NSS 57th rounds, respectively. The estimates for the year 1999-2000 are Rs. 10,568 crore and Rs. 10,819 crore in the old and new series, respectively. The difference in the estimates has mainly been due to regrouping of activities and use of latest data (Table 9).

Table 9: GVA from real estate, ownership of dwellings, business and legal services sector, 1999-2000

(Rs. Crore)

Activity	1993-94 Series	New Series	Difference
Real estate activities	708	1,373	665
Organised		96	
Unorganised		1277	
Renting of machinery, equipment without operator-unorgd.	-	1,407	1,407
Computer and related activities	14,619	17,187	2,568
Organised	14,619	14,619	--
Unorganised	--	2,568	2,568
Legal activities	3,572	3,062	-510
Organised		96	
Unorganised		2966	
Accounting, book keeping	2,019	1,725	-294
Organised		172	
Unorganised		1553	
Research and development	10,568	10,819	251
Organised	8587	4720	
Unorganised	1981	6099	
Ownership of dwellings	77,564	92,185	14,621
GDP (*)	1,09,050	1,27,758	18,708
FISIM	710	668	-42
GDP adjusted for FISIM (*)	1, 08,240	1,27,090	18,850

(*) estimates are not strictly comparable due to re-classification.

Other Services

3.34 The economic activities covered under this sector are (i) coaching and tuition (NIC-98 codes 80903 and 80904), (ii) education excluding coaching and tuition (NIC-98 code 80 (-) 80903 (-) 80904), (iii) human health activities including veterinary activities, (iv) sewage and refuse disposal, sanitation activities (NIC-98 code 90), (v) activities of membership organisations (+) social work (NIC-98, code 91+ 853), (vi) recreational cultural and sporting activities (NIC-98, code 92), (vii) washing and cleaning of textiles and fur products (NIC-98, code-9301), (viii) hair dressing and other beauty treatment (NIC-98, code 9302) (ix) funeral and related activities (NIC-98 code 9303+9309), (x) private households with employed person (NIC-98 code 95), (xi) custom tailoring (NIC-98, code 18105), and (xii) extra territorial organisations and bodies (NIC-98 code 99).

3.35 The method generally followed for estimation of value added for different categories of services in the non-public segment is the labour input method (estimated workforce multiplied by the average value added per person in the activity). For the public sector part, estimates are compiled by analyzing the budget documents of central and state governments and annual reports of public undertakings. For the private organized part, estimates of workforce are from the DGET source and the VAPW from the NSS 57th round in respect of the enterprises recorded as companies. For the private unorganized part, estimates of workforce are from the NSS 55th round (total workforce in each economic activity), reduced by the workforce in the public and private organised sectors (available from the DGET), and the VAPW from the NSS 57th round in respect of enterprises recorded as non-corporate. Following are the major data sources used for the compilation of estimates of GVA in the new series:

- NSS 55th round (1999-2000) EUS
- Population Census, 2001
- DGET-Employment Review, annual data
- NSS 57th round (2001-02) on services
- Budget documents and annual reports for data relating to activities of these services under public sector
- Consumer price indices of agricultural labourers and industrial workers

Educational Services

3.6 In the 1993-94 series, GVA estimates in respect of education were prepared separately for recognized and

non-recognised educational institutions. The GVA for the recognised institutions under public sector was taken to be equivalent to the expenditure on salaries and wages of teaching and non-teaching staff of educational services as available from the budget documents of centre and states and consumption of fixed capital (CFC). For the private recognised educational institutions, the estimates of GVA were obtained as a residual from the data on total salaries and wages paid to teaching and non-teaching staff of recognised institutions as available in the publication 'Education in India' for the year 1986-87, after subtracting the public part. For the private unorganised educational institutions, the method adopted for estimating the GVA in the old series was the labour input method. The estimates of work force in this activity was estimated as a residual from the total workforce by subtracting the workforce in the activity in the public and private organised sector (DGET source) and the estimates of VAPW were from the Enterprise Survey, 1991-92. The overall workforce was obtained from the NSS 50th round survey results. The procedure followed in the new series for the base year 1999-2000 is described below:

Coaching and tuition

3.37 The activities covered under this compilation category are the activities of coaching centres and individuals providing tuitions. The estimates of GVA for coaching and tuition activities have been prepared for the year 1999-2000 following the labour input method using the results of NSS 55th round on employment and unemployment and NSS 57th round on services sectors. The estimate for the year 1999-2000 for new series is Rs. 3,147 crore.

Educational excluding coaching tuition

3.38 The activities covered under this compilation category are the activities of private education institutions, excluding those of coaching centres and individuals providing tuitions. The GVA estimates for education in the new series have been prepared separately for recognized and non-recognised institutions. The GVA for the recognised institutions under public sector is taken to be equivalent to the expenditure on salaries and wages of teaching and non-teaching staff of educational services as available from the budget documents of centre and states and consumption of fixed capital (CFC). The estimates for recognized institutions under private sector have been prepared following the labour input method

using the data on workforce available from the DGET and the estimated VAPW from the NSS 57th round (corporate sector part).

3.39 The GVA estimates for private un-recognized institutions the year 1999-2000 have been compiled following the labour input method separately for rural and urban areas, using the results of NSS 55th round (after excluding the workforce in the organised sector from the DGET source) and the results of NSS 57th round on VAPW (unorganised part). The estimates for the year 1999-2000 in the new series are Rs. 72,589 crore and Rs. 67,284 crore in the old and new series, respectively. The Value Added is less in the new series due to the change in methodology for estimating the GVA of private recognised institutes, as explained in paras 3.80 and 3.82. The change in procedure has been necessitated due to the non availability of data on salaries and wages in recognised educational institutions after 1986-87.

Human health activities and veterinary activities

3.40 The activities covered under this compilation category are the activities of human health and veterinary services. In the 1993-94 series, GVA estimates for health and veterinary services were prepared separately for public, private organised and private unorganised sectors. The GVA for the public sector was taken to be equivalent to the expenditure on salaries and wages of medical personnels obtained from the analysis of the budget documents and consumption of fixed capital. The GVA for private organised sector was prepared using work force estimates from DGET, and the VAPW estimate of public sector in health and veterinary services. For the unorganised segment, the labour input method was followed. The work force estimates were obtained by subtracting the organised sector workforce available from the DGET from the total workforce estimated from the NSS 50th round EUS results and the VAPW estimates were from the Enterprise Survey, 1991-92.

3.41 In the new series estimates of GVA in human health and veterinary services have been prepared separately for public, private organised and private unorganised sectors using the labour input method. The GVA for the public sector has been taken to be equivalent to the expenditure on salaries and wages of medical personnel obtained from the analysis of the budget documents plus the consumption of fixed capital. The GVA for private organised sector has been estimated using workforce estimates from DGET, and VAPW of

corporate sector estimated from the results of NSS 57th round survey on services sectors. For the unorganised segment, the labour input method was followed for estimating GVA for 1999-2000, with work force estimates in the unorganised sector compiled as a residual by subtracting the organised sector workforce (DGET source) from the total workforce as per NSS 55th round survey on employment and unemployment; and the VAPW for the unorganised segment estimated from the NSS 57th round survey results. The estimates of GVA for this activity for the year 1999-2000 are Rs. 22,303 crore and Rs. 27,985 crore, in the old and new series, respectively.

Sewage and refuse disposal, sanitation activities

3.42 The activities covered in this category are the sewage and refuse disposal, sanitation and similar activities. The estimates of GVA of these services in the 1993-94 series were prepared separately for public and private segments. The GVA for public sector was the sum of expenditure on salaries and wages of activities falling under NIC 910 covered under government and consumption of fixed capital. The private sector estimates were prepared separately for rural and urban areas using NSS work force and average compensation of municipal workers engaged in sanitary services. The average compensation of all the 5 types of municipalities i.e. (i). 5 lakhs and above, (ii). 1 lakh to 5 lakhs, (iii). 75000 to 1 lakh, (iv). 5000 to 75000 and (v). below 50000 was used for urban areas. The average compensation of the smallest municipality was used for rural areas. The smallest municipalities were taken as the proxy for rural sectors on the assumption that these municipalities were close to the rural areas. The private sector work force was obtained after subtracting the public sector work force, from the total work force in the sanitary services sub-sector.

3.43 The GVA estimates for these activities for the new series have also been prepared separately for public and private sectors. Public sector estimates are the sum of expenditure on salaries and wages of activities covered under government and consumption of fixed capital. The public sector workforce (WF) as obtained from DGET has been subtracted from the total EUS workforce estimate from NSS 55th round to get the WF estimates for private segment. Thus obtained private sector WF estimates have been divided into rural and urban areas and have been multiplied with VAPW of sanitary workers (data obtained

from municipal returns) to get the GVA estimates for the base year. The estimates for the year 1999-2000 are Rs. 4,374 crore and Rs. 4,288 crore in the old and new series, respectively.

Activities of membership organisations and social work

3.44 This sub-sector includes the activities of associations of writers, painters, lawyers, doctors, journalists and other similar organizations, activities of trade unions, interested chiefly in the representation of their views concerning their work situation, activities of other membership organizations, activities of religious organisations, activities of political organizations, activities of other membership organizations, social work with accommodation, and social work without accommodation. The estimates of these services in the 1993-94 series of NAS were prepared using NSS 50th round estimates of work force and VAPW estimate from the results of Enterprise Survey, 1991-92 duly adjusted for 1993-94 prices, separately for rural and urban following the labour input method.

3.45 The GVA estimates in the new series for the base year (1999-2000) from these services have been compiled using NSS 57th round (2001-02) survey results for estimating the VAPW and NSS 55th round EUS survey results for estimating the workforce. This has been done separately for rural, urban areas and also by organized and unorganized sectors. This activity corresponds to community services of 1993-94 series. The estimates for the year 1999-2000 are Rs. 6,901 crore and Rs. 10,923 crore in the old and new series, respectively. The increase in GVA in the new series has been due to broader coverage of the activity.

Recreational, cultural and sporting activities

3.46 The activities covered in this category are recreational, cultural and sporting activities. The estimates of these services in 1993-94 series of NAS were prepared separately for recreation and entertainment services and T.V. and Radio. The GVA estimates of recreation and entertainment services (other than Radio and T.V. broadcasting) were obtained on the basis of value of output of these services on year-to-year basis and the value added ratio as observed in the Enterprise Survey, 1991-92. In the old series, estimates of GVA for the public part of television and radio were obtained by analyzing the budget

documents of Ministry of Information and Broadcasting. The estimates for private segment were compiled separately for rural and urban areas, following the labour input method, using the VAPW of public administration and defence.

3.47 In the new series, however, the estimates of GVA for this activity have been compiled for the base year 1999-2000, separately for public, private organized and private unorganized segments. While the estimates of GVA for the Public Sector are from the budget documents and annual reports of public undertakings, those of private organized and private unorganized have been compiled following the labour input method, with workforce data from the DGET and the NSS 55th rounds (total workforce), respectively, and the estimates of VAPW for these two segments from the NSS 57th round survey results. The estimates for the year 1999-2000 are Rs. 938 crore and Rs. 6,422 crore in the old and new series, respectively. The increase in new series is due to broader coverage, change in the procedures and use of latest survey results.

Washing and cleaning of textiles and fur products

3.48 The activities covered in this category are washing and dry cleaning of textile and fur products. The estimates of GVA of these services in the 1993-94 series were prepared using NSS 50th round estimates of work force and VAPW estimate from the Enterprise Survey, 1991-92 duly adjusted for 1993-94 prices, separately for rural and urban areas. The GVA estimates for the base year (1999-2000) in the new series in respect of these services have been prepared using NSS 57th round (2001-02) survey results for the estimates of VAPW and the NSS 55th round EUS results for workforce, separately for rural and urban areas. The estimates for the year 1999-2000 are Rs. 2,327 crore and Rs. 3,745 crore in the old and new series, respectively. The increase is due to use of latest survey results.

Hair dressing and other beauty treatment

3.49 The activities covered in this category are hairdressing and other beauty treatment. The estimates of GVA of these services in 1993-94 series of NAS were

prepared using NSS 50th round estimates of work force and VAPW of the Enterprise Survey, 1991-92 duly adjusted for 1993-94 prices, separately for rural and urban areas. The VAPW was estimated for 1993-94 series based on the data of establishments (those employing at least one hired worker) only, and the data in respect of Own Account Enterprises (OAE) was not taken into account

3.20 The GVA estimates for the base year (1999-2000) in the new series from these services have been prepared using NSS 57th round (2001-02) survey results for VAPW and NSS 55th round EUS results for the workforce, and following the labour input method, separately for rural and urban areas. The estimates for the year 1999-2000 are Rs. 2,015 crore and Rs. 4,249 crore in the old and new series, respectively. The increase in the new series has been due to broader coverage and use of latest survey results.

Custom tailoring

3.51 The estimates of these services in 1993-94 series of NAS were prepared following the labour input method using NSS 50th round estimates of work force and VAPW of manufacturing of readymade garments (estimated from the NSS 51st round survey, 1994-95 results). In the new series, the GVA for these services in the base year has been estimated using NSS 56th round (unorganized manufacturing) data on VAPW and NSS 55th round data on work force, separately for rural and urban areas. The estimates of GVA for the year 1999-2000 are Rs. 8,638 crore and Rs. 4,874 crore in the old and new series, respectively. The fall is primarily due to difference between the extrapolated workforce estimate and VAPW used in old series and the estimates from the latest survey results.

Funeral and related activities

3.52 The activities covered in this category are funeral and related activities (NIC-98, code 9303) and other service activities, n. e. c. (NIC-98, code 9309). The estimates of GVA of these services in the 1993-94 series of NAS were prepared using NSS 50th round estimates of work force and VAPW estimate from the results of Enterprise Survey, 1991-92 duly adjusted for 1993-94 prices, separately for rural and urban areas. The VAPW estimates were based only on the Establishments data and Own Account Enterprises (OAE) were not taken into account. The GVA estimates for the base year (1999-

2000) in the new series in respect of these services have been prepared using NSS 57th round (2001-02) results for the VAPW estimates and NSS 55th round EUS results for workforce, following the labour input method, separately for rural and urban areas. The estimates for the year 1999-2000 are Rs. 4,192 crore and Rs. 9,399 crore in the old and new series, respectively. The increase in the new series has been due to regroup of the activities and use of latest survey results.

Private households with employed person

3.53 The activities covered in this category are private households with employed persons. The estimates of GVA of these services in the 1993-94 series were prepared using NSS 50th round estimates of work force and VAPW estimates in respect of NIC-96 1 to 969 from the results of Enterprise Survey, 1991-92 duly adjusted for 1993-94 prices, separately for rural and urban areas (as a proxy). The VAPW used for 1993-94 series was based on the Establishments only and data in respect of Own Account Enterprises (OAE) was not taken into account.

3.54 Data on private households with employed persons was not collected in the NSS 57th round survey on services sectors, as it was not found to be feasible to identify such households as enterprises. The value added generated by this activity relates to wages paid to 'employed persons' by the households. Therefore, the VAPW for this activity in the new series for 1999-2000 has been estimated on the basis of wage data collected in the NSS 55th round Employment Unemployment Survey. The total weekly earnings of the workers falling under this category have been divided by the number of workers to arrive at weekly wages/salaries. The GVA estimates in respect of these services have been compiled using average weekly wage per unit of labour input (adjusted for annual wages), separately for rural and urban areas in the base year.

3.55 The estimates for the year 1999-2000 are Rs. 4,070 crore and Rs. 3,004 crore in the old and new series, respectively. In the old series VAPW of personal services as a whole was taken as proxy which has been replaced by wage data of NSS-55th round estimate. Moreover, the estimated workforce is also less as per NSS 55th round in 1999-2000, as compared to the projected workforce estimate in the old series for the same year.

3.56 Table 10 gives the GVA estimates from other services at 1999-2000 prices.

Table 10: Value added from other services, 1999-2000

(Rs. Crore)

Activity	1993-94 Series	New Series	Difference
Education	72,589	70,431	-2,158
Organised	70,873	57,540	
Public	38,450	39,269	
Private	32,423	18,271	
Unorganised	1,715	12,891	
Human health and veterinary services	22,303	27,985	5,682
Organised	13,591	14,296	
Public	12,489	12,488	
Private	1,102	1,808	
Unorganised	8,712	13,689	
Sewage and refuse disposal, sanitation activities	4,374	4,288	-86
Organised	2,830	2,847	
Public	2,830	2,847	
Unorganised	1,544	1,441	
Activities of membership organisations, social work	6,901	10,923	4,022
Organised		8,664	
Unorganised		2,259	
Recreational cultural and sporting activities	938	6,422	5,484
Organised	33	2,462	
Public	-91	719	
Private	124	1,743	
Unorganised	905	3,960	
Washing, cleaning of textiles & fur products - unorgd.	2,327	3,745	1,418
Hair Dressing and other Beauty Treatment - unorgd.	2,015	4,249	2,234
Custom Tailoring - unorgd.	8,638	4,874	-3,764
Funeral and related activities - unorgd.	4,192	9,399	5,207
Private households with employed person	4,070	3,004	-1,066
Extra Territorial Organisations and Bodies	3,433	805	-2,628
GDP Total (*)	1,31,780	1,46,125	14,345
FISIM	1,949	1,802	-147
GDP adjusted for FISIM (*)	1, 29,831	1,44,323	14,492

(*) estimates are not strictly comparable due to reclassification of activities between the two series.

4. ESTIMATES FOR SUBSEQUENT YEARS

4.1 In the case of unregistered manufacturing sector, the procedure followed is to first estimate the value added at constant prices, by extrapolating the base year estimates with the IIP, at compilation category level. The current price estimates of value added for unregistered

manufacturing sector are obtained by superimposing the relevant WPIs on the constant price value added estimates, at compilation category level.

4.2 For the **electricity, gas and water supply** sector, the unorganised part of water supply at current prices is estimated using the extrapolated workforce estimates and

wages of municipality workers (smallest ones), while the constant price estimates are compiled by deflating the current GVA estimates by relevant price indices.

4.3 For the unorganised part, estimates of base year are extrapolated with gross trading index (GTI), which is specially compiled using the trading incomes from the commodity producing sectors and imports. The GTI at current prices and the GTI at constant prices are used to extrapolated the base year estimates for arriving at current and constant price estimates of unorganised trade, hotels and restaurants sectors.

4.4 In respect of all other **services sectors**, the estimates for the public part are through direct methods, while the constant price estimates for subsequent years are through **extrapolation with single indicators** (such as net tonne kilometers and passenger kilometers in the case of railways, quantum of index of passenger kilometers in the case of road transport, index of cargo handled for water transport, air transport volume index for air transport, volume index in the case of communication, etc.) or by single deflation (such as using CPI(IW) in the case of public administration, implicit GDP deflator in the case of commercial banks, etc.). For the private organised and unorganised segments, current and constant price estimates are prepared using different procedures depending on the data availability for arriving at the estimates for subsequent years, at current and constant prices.

5. CONCLUDING REMARKS

5.1 It is evident from the above, that current data is used for estimating the GDP in respect of primary and secondary sectors, railways, banking and insurance, public administration and defence, public sector part of various services and some components of organised private sector. Although, current data from the benchmark surveys is used for estimating the unorganised part of manufacturing and services sectors in the case year, estimates for the subsequent years are based on proxy physical indicators (such as IIP for unorganised manufacturing, Gross Trading Index in the case of trade, hotels and restaurants) or using inter-survey or inter-censal growth rates. It may be mentioned at this stage that there is generally an upward revision in the GDP estimates, whenever the base years are changed, indicating that the growth rates not over estimated.

5.2 The present weaknesses in the GDP estimation, as is well known to the users, is on account of lack of current data on private corporate sector, as well as on the unorganised sector. In the case of former, there is no agency in the country which provides global estimates of private corporate sector, on either quarterly or annual basis. The only source at present is the RBI's company finance studies. However, due to its sample size being small, it is difficult to get reliable estimates at economic activity level or at State level. In the case of unorganised sector, the surveys are conducted only once in about 5 years, by the NSSO. This, however excludes the trading activity, which is one of the major sectors of the economy. There is no other source giving data on the performance of unorganised sector.

5.3 Another weak area in the estimation of GDP is the absence of suitable price deflators for the service sectors. The recommended procedures for the constant price estimates is the double deflation procedure, which means the value of output and value of inputs are to be deflated separately by their appropriate price indices and the Gross Value Added is to be arrived at as the difference between output and inputs. It is well known that we do not have a service sector price index in the country, leave alone appropriate price indices separately for inputs and outputs or various components of GVA, such as salaries and wages and operating surplus.

5.4 The Ministry of Company Affairs has recently launched the MCA21 programme, which envisaged online filing of accounts by the companies. It is hoped that this Programme would provide current and exhaustive data on private corporate sector in the near future. Regarding unorganised sector, a programme should be in place for collecting annual data on at least the larger establishments. The Annual survey of Non-Manufacturing Industries (ASNMI), was recommended by the National Statistical Commission (NSC) for implementation. This is similar to the Annual Survey of Enterprises (ASE) or Economy-wide Survey (EWS), which most countries have in place. It is necessary to introduce ASE something in the future. The strengthening of corporate sector statistics, introduction of ASE and the service sector price indices are the key to further improving the quality of GDP estimates in the country. These would also enable the country to have an Index of Service Production (ISP) on the pattern of Index of Industrial Production(IIP).

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Modified Method of apportioning

The Labour Input Method

1. In the book titled 'Measuring the Non-observed Economy – A Handbook' by OECD (2002), the Labour Input Method has been suggested as a feasible method for estimating un-observed economy including the contribution of informal sector to GDP. In this method, the estimated labour input in each industry group is multiplied by the corresponding Gross Value Added (GVA) per unit of labour. Reliable database on sector-wise employment and GVA per worker are required for the use of this method.
2. If E_i is the labour input (defined in terms of number of workers or jobs) employed in the i th sector and $GVAP_i$ is the average value added per worker/job then GVA for the i th sector is given by

$$GVA_i = E_i * GVAP_i$$

Then the Total value added in sector would be

where n is the number of sectors in the economy.

3. The estimates of labour input can be worked out with reasonable level of accuracy by using the data sets of NSS Labour Force Surveys. The estimation of gross value added per worker is, however, a difficult task due to non-coverage of all the sectors of the economy in the enterprise surveys being conducted in India. For example, there has not been any enterprise survey for the estimation of gross value added per worker in the agricultural, mining and electricity, gas & water supply sectors during the last two decades. In the case of other sectors, the estimates are not available for all the industry groups for any single year, as enterprise surveys on different subjects are conducted on different years. There are also self-employed persons like maid servants, home tutors, head load workers, etc who may not be captured in any enterprise survey. The estimates of gross value added per worker obtained from these surveys are also considered to be under estimates due to various reasons including under reporting of receipts. It has, therefore, not been possible to use this method for the estimation of the contribution of un-organised sector to GDP with any reasonable level of accuracy.

Method of Apportioning

4. Mr. Ramesh Kolli and Mr. Suvendu Hazra of CSO estimated the share of informal sector in the Net Domestic Product (NDP) by apportioning the estimated unorganized sector NDP of different industry groups by using the results of different enterprise surveys. The relative shares of 'informal sector enterprises' in the GVA estimates derived from unorganized sector surveys have been used for apportioning. The methodology as described below is found to be useful in the absence of reliable estimates of value added per worker in respect of many sectors.
5. Let p_i be the proportion of gross value added by the establishments in the informal sector (based on the proposed definition of the Task Force) in the i th industry group, out of the total gross value added by the enterprises in the unorganised sector as defined under NAS as revealed by the surveys.

Thus
$$p_i = GVA_i^U / GVA_i^T$$

Where, GVA_i^U = GVA estimate of informal sector establishments in the i^{th} industry as obtained from unorganised sector surveys.

GVA_i^T = GVA estimate of all the un-organised sector establishments in the i^{th} industry as obtained from the same surveys.

This π_i can be applied to the GDP_i of the unorganised sector in the specific industry group as estimated by CSO to obtain the estimate of Gross Value Added for the informal sector. Thus the contribution of the informal sector in the i th industry group to the GDP will be $\pi_i * GDP_i$.

6. This methodology also has serious limitations as in the case of labour-input method. An important limitation is that the method assumes that the work force estimates from the enterprise surveys correctly reflect the actual proportion of work force in the informal sector in the un-organised sector of each industry group. This assumption has been proved to be incorrect by the labour force surveys. Secondly, the coverage of unorganised sector surveys, particularly in the services sector, is generally different from the un-organised sector as defined in national accounts. The establishment of comparability with the national accounts classification is often a tedious job. However, the method of apportioning is a useful technique for estimating the contribution of informal sector to the GDP of each tabulation category in the absence of data sets for the application of direct methods.

Mathematical scaffolding of Modified Method of Apportioning by NCEUS

7. **Agriculture Sector:** The GDP estimate of unorganised sector as computed by CSO as a part of the National Accounts Statistics is considered as the contribution of Informal sector in the absence of any survey data on agricultural enterprises.

8. **Manufacturing sector.** If E is the total number of workers in the manufacturing sector then

$$E = E_{asi} + E_{non-asi} \dots (i)$$

Where the subscripts asi and $non-asi$ indicate the number of workers in ASI and non asi sectors.

From (i) the non- asi sector is again broken to unorganised and other sectors. For any compilation category I , it is given as

$$E_i^{non-asi} = E_i^u + E_i^o$$

Where u and O represent unorganised and other component

9. The total workers in each compilation category, classified according to specific requirements of each segment were estimated from NSS 55th and 61st Round Employment-Unemployment surveys, after making appropriate adjustments for census population estimates/projections. These estimates were based on usual principal and subsidiary status concept used in the surveys.
10. In the manufacturing sector, all the registered factories covered under the Factories Act, 1948 constituted the organised sector. The unorganised sector as per national accounts, therefore, included establishments in the corporate and Government sectors as well as those employing more than nine workers but not using power. Thus the informal sector as per the Task Force definition was a subset of unorganised sector of national accounts. Therefore, apportioning was to be done only for the unorganised component of the GDP. The methodology for apportioning consisted of the following steps.
 - i) By using the data sets of Employment-Unemployment surveys, work force in the manufacturing sector was divided between ASI and Non-ASI sectors. The enterprise characteristics like number of workers employed, use of electricity, were used for making such a division.
 - ii) The work force engaged in the Non-ASI Sector was further divided into those belonging to informal sector and outside as per Task Force definition. Again the enterprise characteristics like type of enterprise and employment size were used for the classification.

Let NE_i = non-ASI work force in the i th tabulation category within the manufacturing sector.

NE_i^u = non-ASI, informal sector work force in the i th tabulation category.

NE_i^o = non-ASI, other workers in the i th compilation category.

$$NE_i = NE_i^u + NE_i^o$$

- iii) The NSS 56th Round Survey on Un-organised Manufacturing Enterprises included all the establishments not covered under the Annual Survey of Industries. The establishments surveyed were classified into those belonging to the informal sector and others by using the criteria of enterprise type and number of workers. The average gross value added per worker has been then estimated for each group separately in each compilation category.
Let $GVAP^U_i$ = the gross value added per worker for informal sector units in the i th tabulation category.
 $GVAP^O_i$ = the gross value added per worker for other units in the i th tabulation category.
- iv) The employment estimates of informal sector and others in each compilation category as obtained from NSS 55th and 61st Round surveys were then multiplied with the corresponding gross value added per worker estimates obtained from NSS 56th Round to get notional estimates of GVA in each group.
Thus $GVA^U_i = NE^U_i * GVAP^U_i$ and
 $GVA^O_i = NE^O_i * GVAP^O_i$
- v) The ratio for apportioning the estimated unorganised sector GDP is then computed as follows:
 $R_i = GVA^U_i / (GVA^U_i + GVA^O_i)$
Where R_i is the ratio to be used for apportioning unorganised sector GDP of each tabulation category.
- vi) The ratios thus worked out were applied to GDP estimates of unorganised sector for each tabulation category to estimate the contribution of informal sector.

11. In the case of construction, trade, banking, financial intermediation and insurance, the organised sector in the compilation of national accounts include all public and private corporate sector enterprises. Therefore, apportioning has to be done only for unorganised sector GDP in these groups of industries also as in the case of manufacturing sector. The methodology for apportioning thus involved the following steps.

- (v) The work force employed in the non-public and non-corporate sector in each of the tabulation categories of the above industry groups was divided into those belonging to informal sector and others by using the data on enterprise type and number of workers.
Let NE_i = non-public and non-corporate sector workers in the i th tabulation category
 NE^U_i = non-public and non-corporate informal sector workers in the i th tabulation category
 NE^O_i = non-public and non-corporate other workers in the i th tabulation category
 $NE_i = NE^U_i + NE^O_i$

- (vi) The proprietary and partnership establishments in the above categories of industries were surveyed in the NSS 55th Round Informal Sector Survey. The data sets of this survey were used for estimating the average value added per worker separately for informal sector establishments and others in each compilation category.

Let $GVAP^U_i$ = the gross value added per worker for informal sector units in the i th tabulation category
 $GVAP^O_i$ = the gross value added per worker for other units in the i th tabulation category

- (vii) The employment estimates of informal sector and others in each tabulation category as obtained from NSS 55th and 61st Round surveys were then multiplied with the corresponding gross value added per worker estimates obtained from NSS 55th Round Informal Sector Survey to get notional estimates of GVA in each sector. Thus
 $GVA^U_i = NE^U_i * GVAP^U_i$
 $GVA^O_i = NE^O_i * GVAP^O_i$

(viii) The rest of the steps are the same as those at steps (v) and (vi) under 10.

12. In the services sector, there were variations in the coverage of organised sector in the compilation of national accounts. While in the case of hotels and restaurants, the establishments in the public, corporate and co-operative sectors were included in the organised sector, in the case of health services only the public sector medical facilities were treated as organised. In the case of education all recognized educational institutions

without any consideration of ownership type and number of workers were included in the organised sector. In Public Administration and Defence and Railways, the entire sector has been regarded as organised. The public sector was, however, invariably included in the organised sector in all the compilation categories. The NSS 57th Round Unorganised Services Sector Survey also covered all the establishments in the non-public sector. However, there were certain tabulation categories for which value added per worker estimates were not available from the Unorganised Services Sector Surveys. These were:

- a) Air transport
- b) Postal Services
- c) Public administration
- d) Private households with employed persons
- e) Extra-territorial organisations and bodies

In view of the above, the apportioning exercise had to take into account the total GDP estimate of the relevant tabulation categories. The steps involved in the exercise were the following:

- i) The total employment in each of the tabulation categories as obtained from NSS 55th and 61st Round Surveys was divided into informal sector employment and others by the criteria of enterprise type and number of workers.

Let E_i = total workers in the i th tabulation category

E_i^U = informal sector workers in the i th tabulation category

E_i^O = workers other than informal sector workers in the i th tabulation category

$$E_i = E_i^U + E_i^O$$

- ii) The gross value added per worker was estimated separately for informal sector enterprises and others in each tabulation category from NSS 57th Round Survey on Unorganised Services (excluding trade and finance).

Let $GVAP_i^U$ = the gross value added per worker for informal sector units in the i th tabulation category.

$GVAP_i^O$ = the gross value added per worker for establishments other than those in the informal sector in the i th tabulation category.

- iii) The employment estimates of specific sectors in each compilation category were multiplied with the corresponding GVA per worker obtained from NSS 57th Round Survey to get notional estimates of GVA in each sector. Thus

$$GVA_i^U = E_i^U * GVAP_i^U$$

$$GVA_i^O = E_i^O * GVAP_i^O$$

- iv) In the case of tabulation categories for which value added per worker estimates were not available either for the units in the informal sector or for the other sector, the overall productivity ratio between informal sector establishments and others in the entire services sector was used for deriving the relevant ratios.

- v) The ratios for apportioning the total GDP estimate of each of the tabulation categories in the above service industries were computed by using the following formula.

$$R_i^T = GVA_i^U / (GVA_i^U + GVA_i^O)$$

R_i^T indicates the ratio for apportioning total GDP estimate of i th tabulation category.

The assumption in the methodology is that the productivity in terms of value added per worker for public sector establishments is the same as other establishments in the organised sector including corporate and co-operative sector establishments.

- vi) The ratios thus worked out were applied to GDP estimates of the respective tabulation categories to estimate the share of informal sector in the relevant tabulation category.

13. Mining, Electricity, Gas & Water supply establishments are largely in the public and corporate sector. Production estimates and other data sets in these sectors are therefore, mostly available from Government agencies. Major minerals as reported by the Indian Bureau of Mines constitute organised mining for the purpose of national accounts irrespective of ownership of enterprise and employment size. Similarly, in the case of electricity, gas and water supply total activity of electricity and public sector part of gas and water supply are included in the organised sector of national accounts. Here again no ownership and employment size criteria were used for division between organised and un-organised sectors. It is therefore, necessary to apportion the total GDP for estimating the contribution of informal sector. The methodology adopted for the same involved the following steps:

- i) The total employment in each of the tabulation categories as obtained from NSS 55th and 61st Round Surveys was divided into informal sector employment and others by the criteria of enterprise type and number of workers

Let E_i = total workers in the i th tabulation category

E_i^U = informal sector workers in the i th tabulation category

E_i^O = workers outside the informal sector in the i th tabulation category

$$E_i = E_i^U + E_i^O$$

- ii) The NSS 55th and 61st Round Employment-Unemployment surveys showed the existence of informal sector establishments in these industries. However, estimates of gross value added per worker were not available in the case of these industries from any recent surveys. In the case of these industries and those services for which value added per worker estimates were not available from any recent surveys, the productivity ratios between organised sector establishments and informal sector establishments in the entire services were used for deriving the relevant ratios for apportioning.

Let the proportion of employment between organised sector establishments and unorganised sector establishments in the i th tabulation category is

$$PE_i : 1$$

$$PEO_i = E_i^O / E_i^U$$

Let the productivity ratio between organised sector and unorganised sector in the entire services sector is

$$PO_{GVAP} : 1$$

The GVA ratio between the organised and unorganised sector is then given by

$$PO_{E_i} * PO_{GVAP} : 1$$

The ratio for apportioning the total GDP estimate in each of the tabulation categories is then given by

$$R_i^T = 1 / [(P_{E_i}^O * P_{GVAP}^O) + 1]$$

- iv) The above ratios are applied to GDP estimates of the respective tabulation categories to estimate the share of informal sector in the relevant tabulation category.

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NATIONAL COMMISSION FOR ENTERPRISES IN THE UNORGANISED SECTOR

The National Commission for Enterprises was constituted on the 20th September, 2004 under the Chairmanship of Dr Arjun Sengupta with the following terms of reference:

- i. Review of the status of unorganized/informal sector in India including the nature of enterprises, their size, spread and scope, and magnitude of employment;
- ii. Identify constraints faced by small enterprises with regard to freedom of carrying out the enterprise, access to raw materials, finance, skills, entrepreneurship development, infrastructure, technology and markets and suggest measures to provide institutional support and linkages to facilitate easy access to them;
- iii. Suggest the legal and policy environment that should govern the informal/unorganized sector for growth, employment, exports and promotion;
- iv. Examine the range of existing programmes that relate to employment generation in the informal/unorganized sector and suggest improvement for their redesign;
- v. Identify innovative legal and financing instruments to promote the growth of the informal sector;
- vi. Review the existing arrangements for estimating employment and unemployment in the informal sector, and examine why the rate of growth in employment has stagnated in the 1990s;
- vii. Suggest elements of an employment strategy focussing on the informal sector;
- viii. Review Indian labour laws, consistent with labour rights, and with the requirements of expanding growth of industry and services, particularly in the informal sector, and improving productivity and competitiveness; and
- ix. Review the social security system available for labour in the informal sector, and make recommendations for expanding their coverage.

The current composition of the Commission is as follows:

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|------|--------------------------|------------------|
| i) | Professor Arjun Sengupta | Chairman |
| ii) | Professor K P Kannan | Member |
| iii) | Professor R S Srivastava | Member |
| iv) | Shri V K Malhotra | Member Secretary |
| v) | Shri B N Yugandhar | Part time member |
| vi) | Professor T S Papola | Part time member |